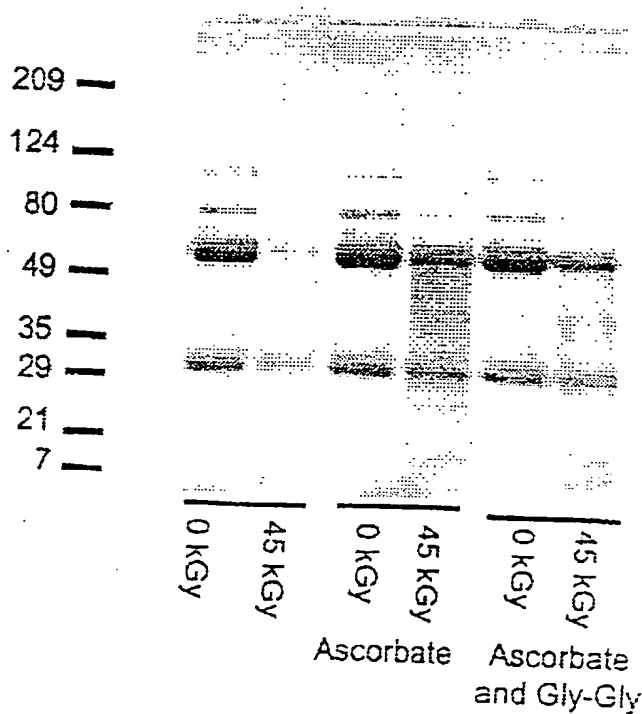


Fig 1A

# Gamma Irradiation of Liquid IGIV in the Absence or Presence of Ascorbate Alone or in Addition to Gly-Gly

Liquid IGIV, Reduced 5-15%



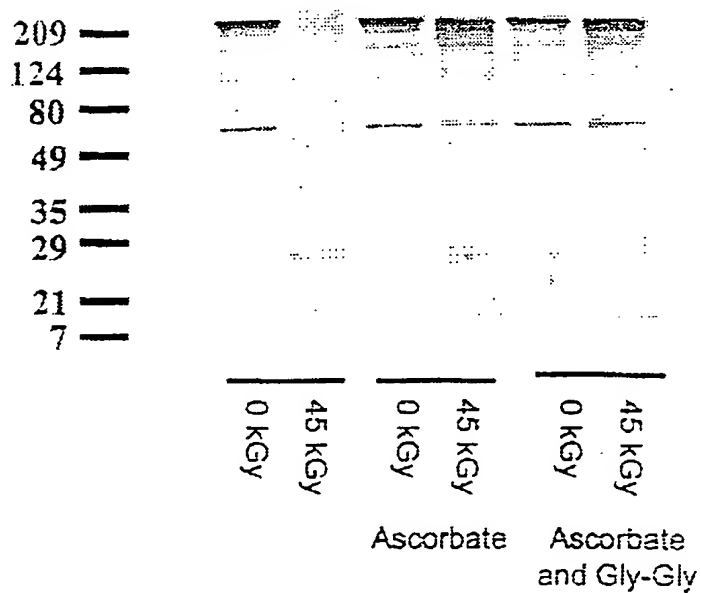
00073058-101101



Fig 1B

Gamma  
Irradiation of Liquid IGIV in the Absence or Presence of  
Ascorbate Alone or in Addition to Gly-Gly

Liquid IGIV, Non-Reduced 5-15%

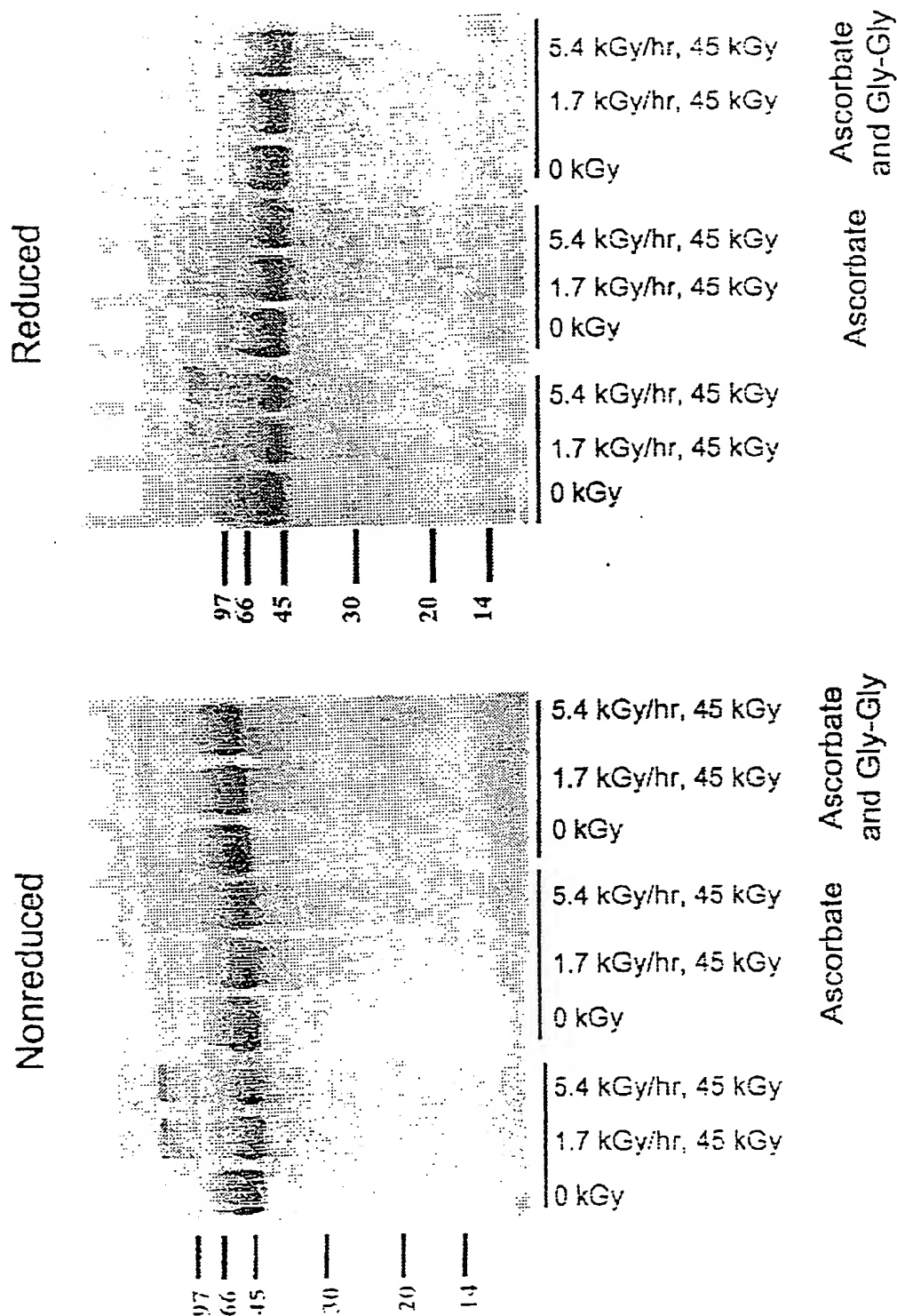


00073058-101101



**Figure 2A**

**Gamma Irradiation of a Glycosidase In the Presence of Ascorbate and Gly-Gly**





## Gamma Irradiation of a Sulfatase In the Presence of Ascorbate and Gly-Gly

# Reduced

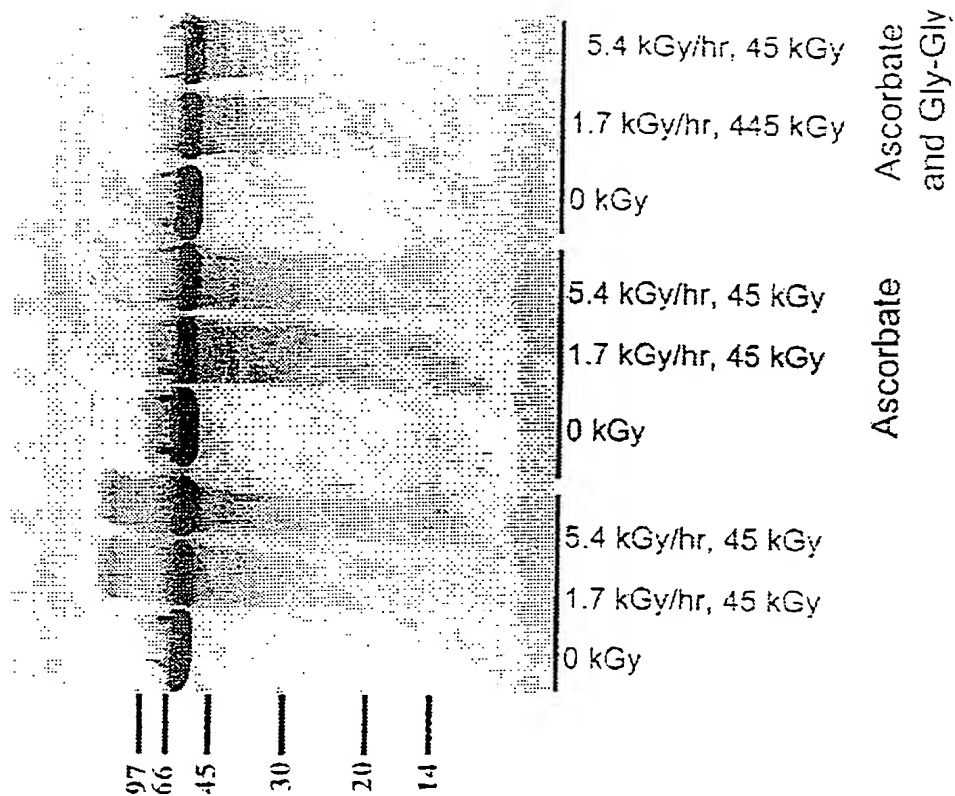
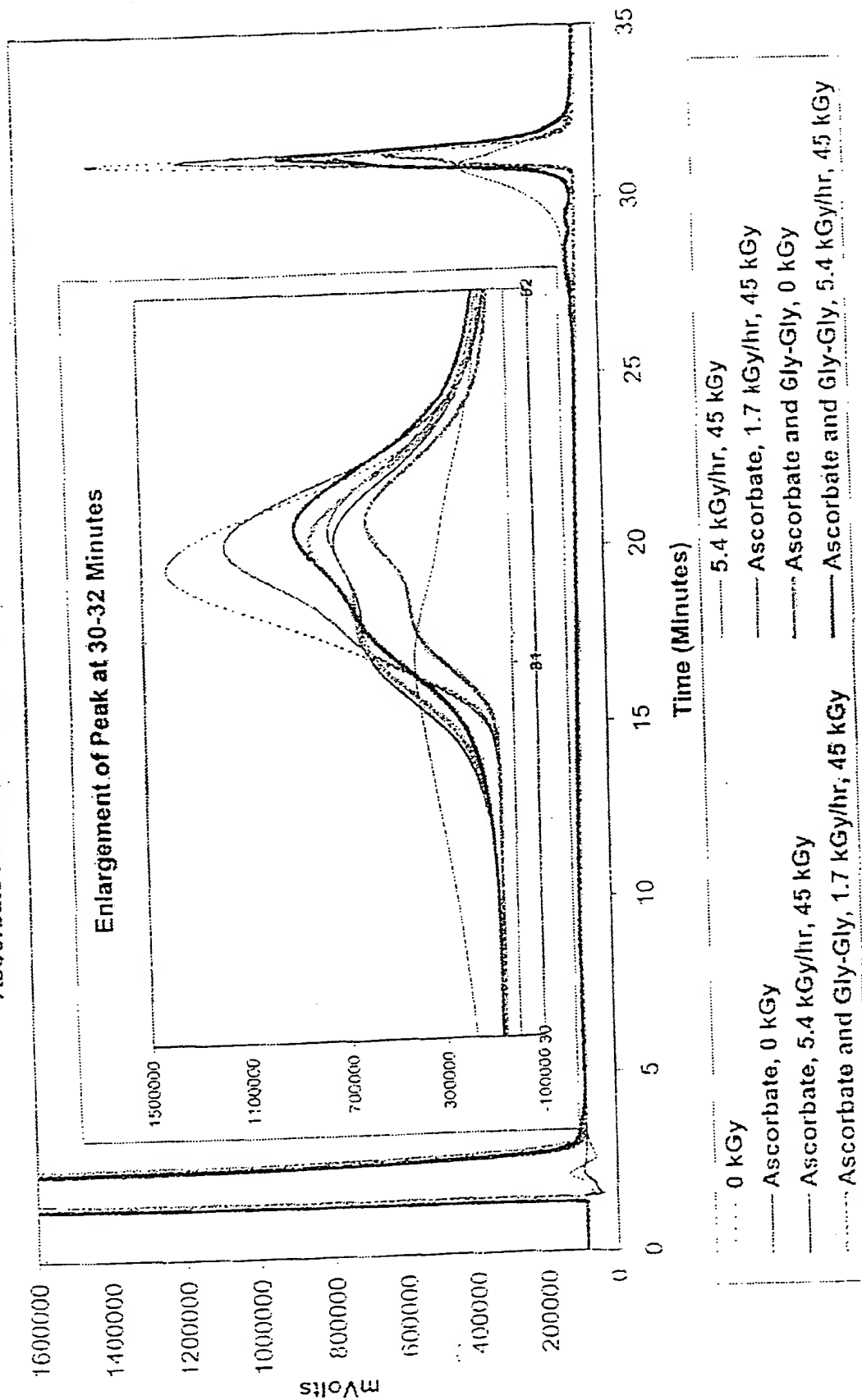




Figure 3

TOP: 8562600

Gamma Irradiation of a Galactosidase In the Presence or Absence of Ascorbate Alone or in Combination with Gly-Gly





TOTOT 355E2660

Gamma Irradiation of Immobilized Anti-Insulin Monoclonal Antibody with Varying Ascorbate Concentrations in the Presence or Absence of 1.5mM Uric Acid

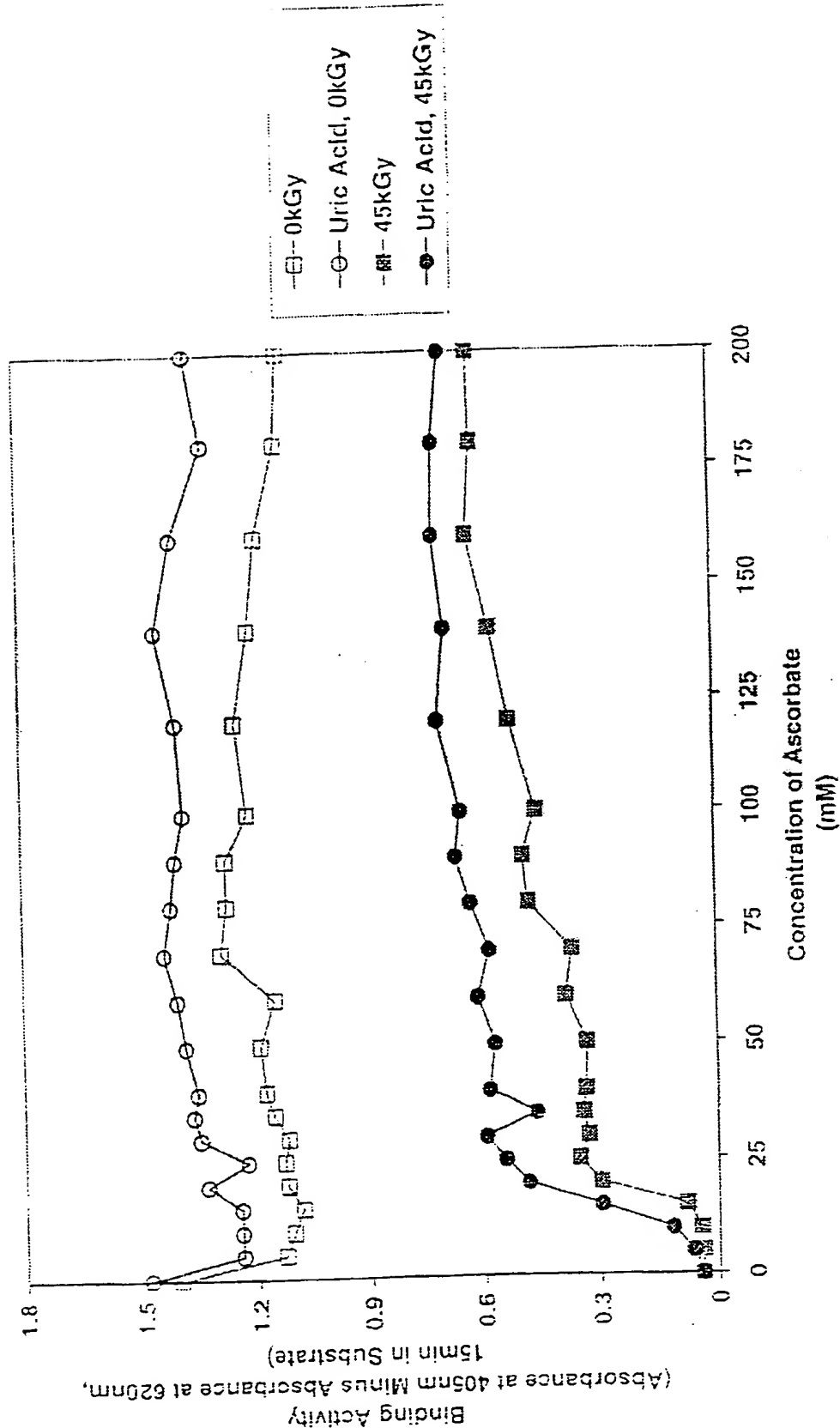




Figure 5

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# Gamma Irradiation of Immobilized Anti-Insulin Monoclonal Antibody with Varying Ascorbate Concentrations in the Presence or Absence of 2.25mM Uric Acid

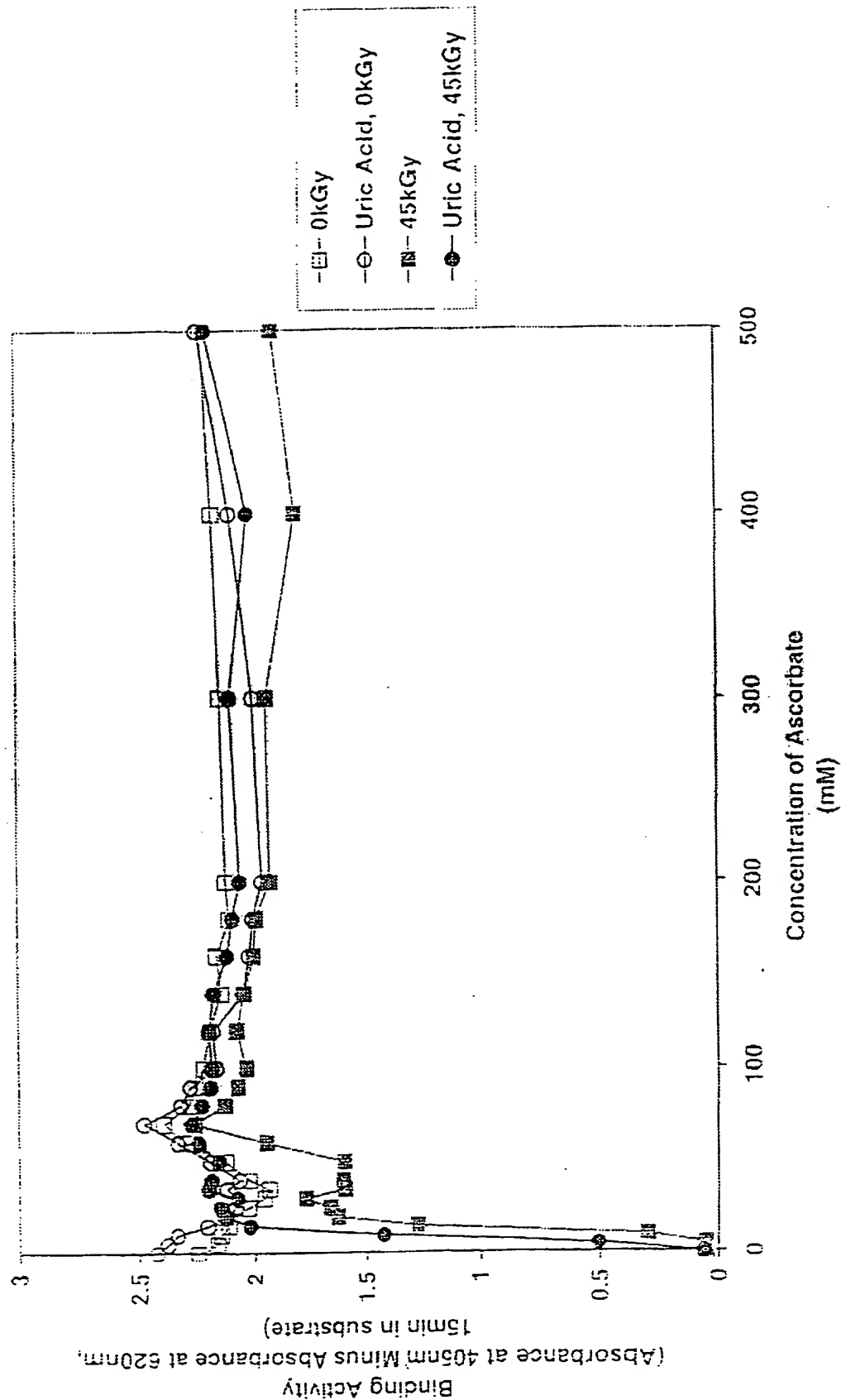
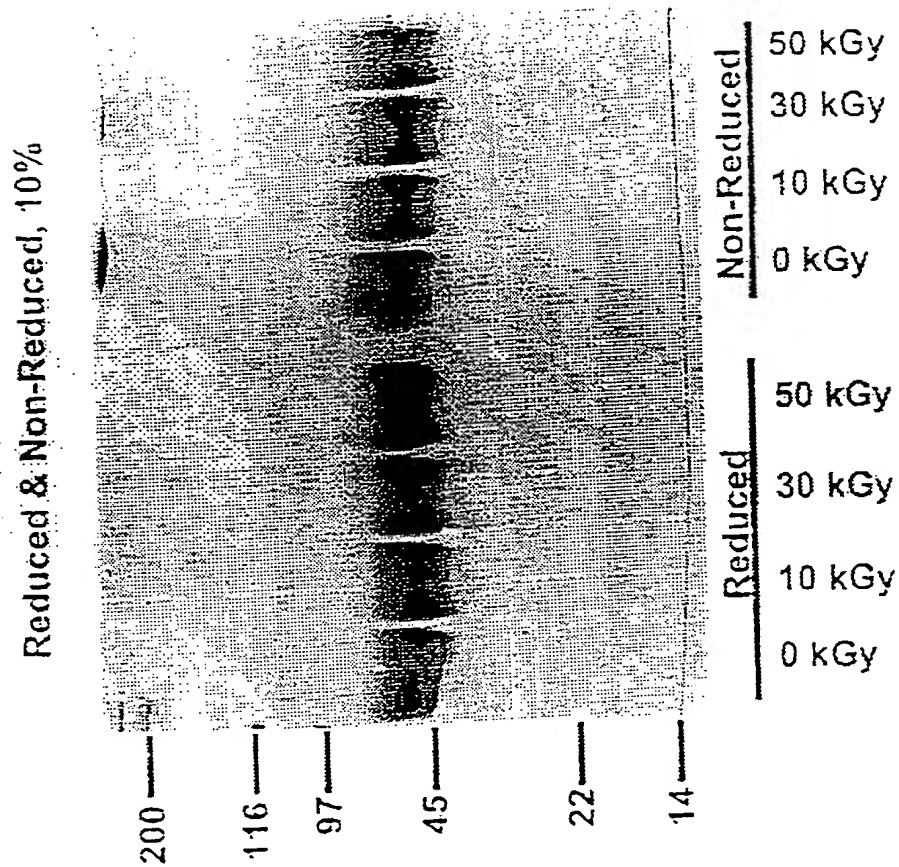




Figure 6

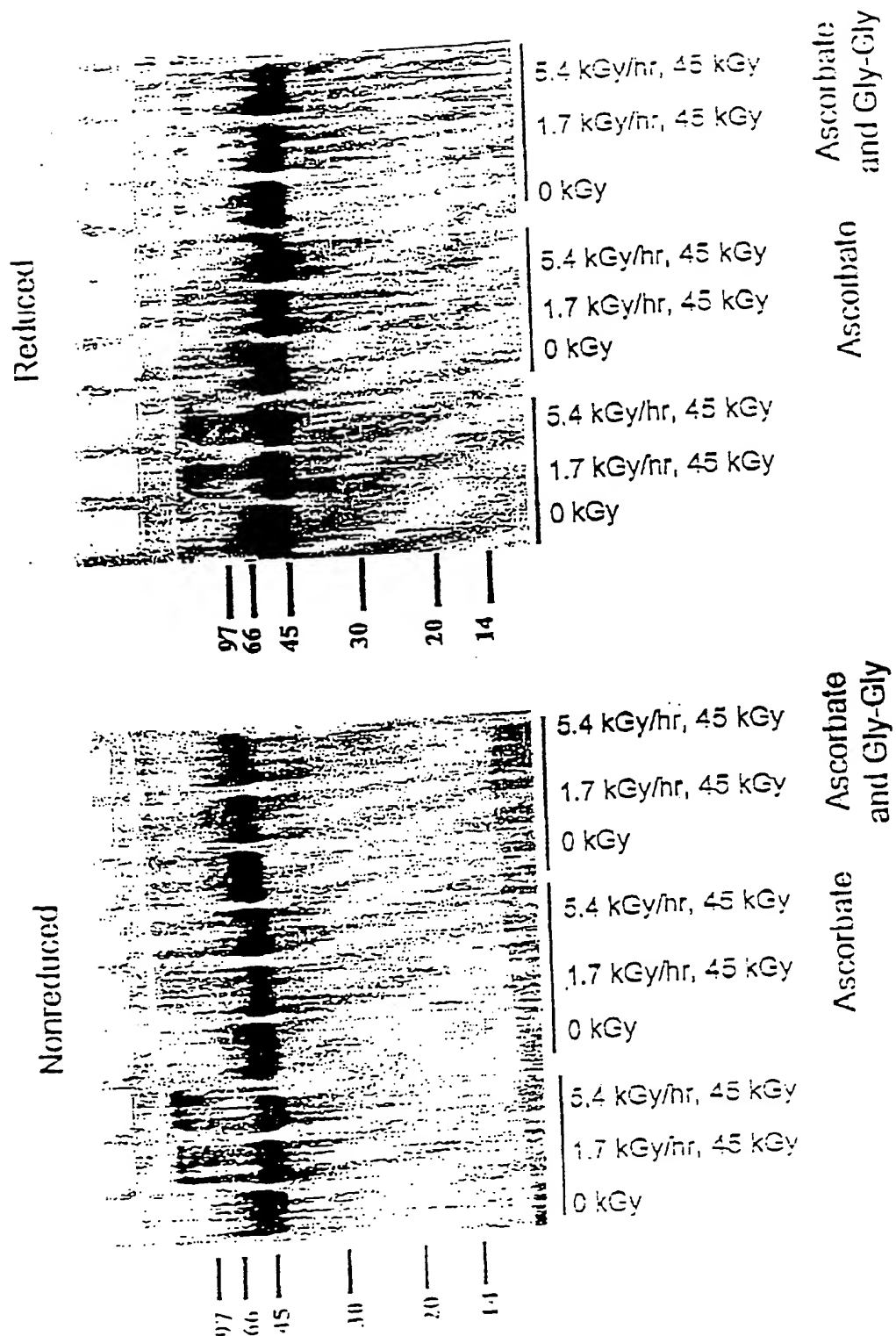
TOPP-3562660

Gamma Irradiation of a Lyophilized Galactosidase  
In the Presence of 200mM Ascorbate and 200mM Gly-Gly





# Gamma Irradiation of a Galactosidase in the Absence or Presence of Ascorbate Alone or in Combination with Gly-Gly

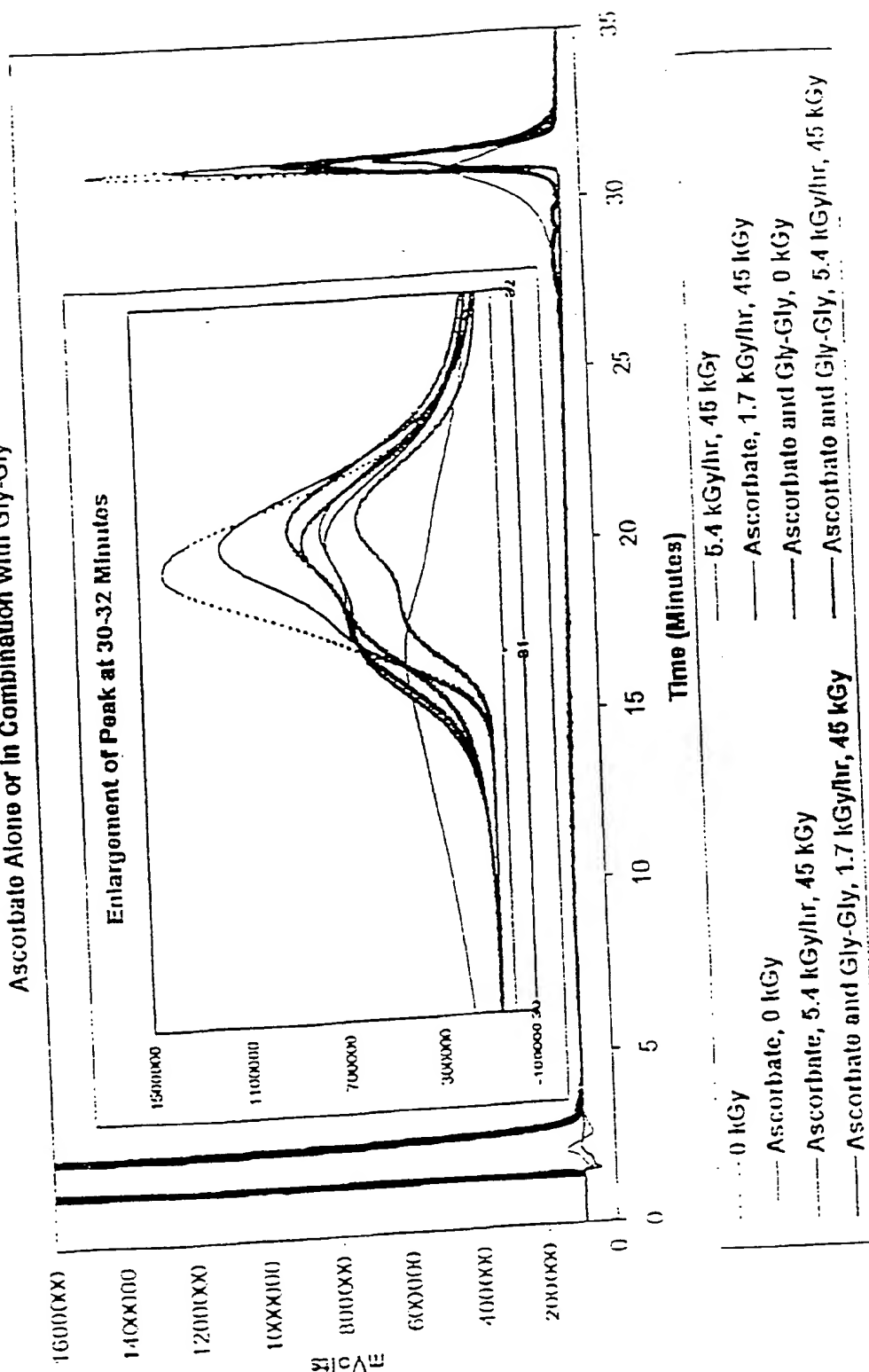


7B

7A

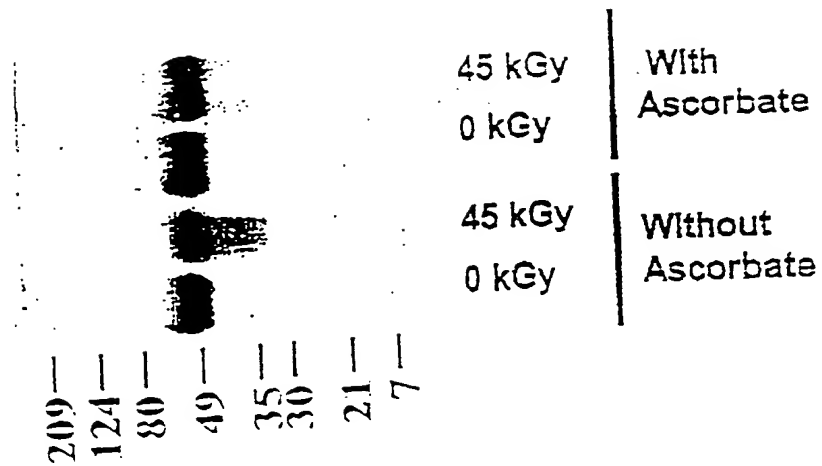


# Gamma Irradiation of a Galactosylase in the Presence or Absence of Ascorbate Alone or in Combination with Gly-Gly





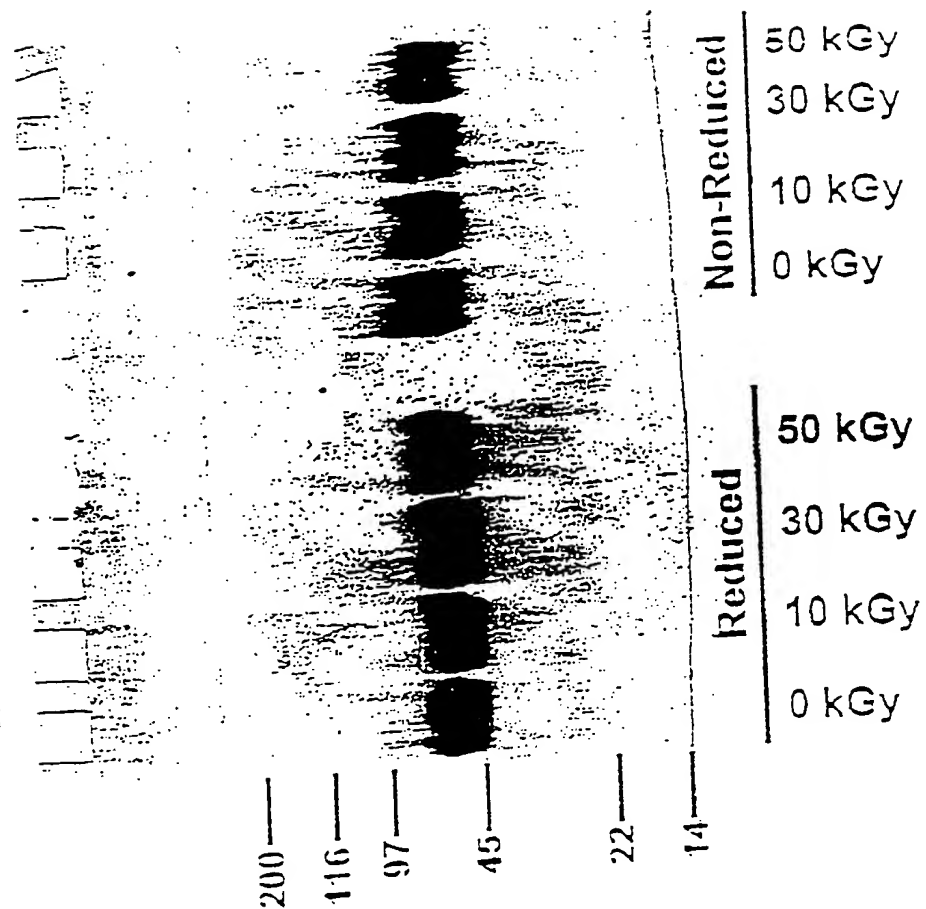
# Gamma Irradiation of a Lyophilized Galactosidase in the Absence and Presence of 100mM Ascorbate





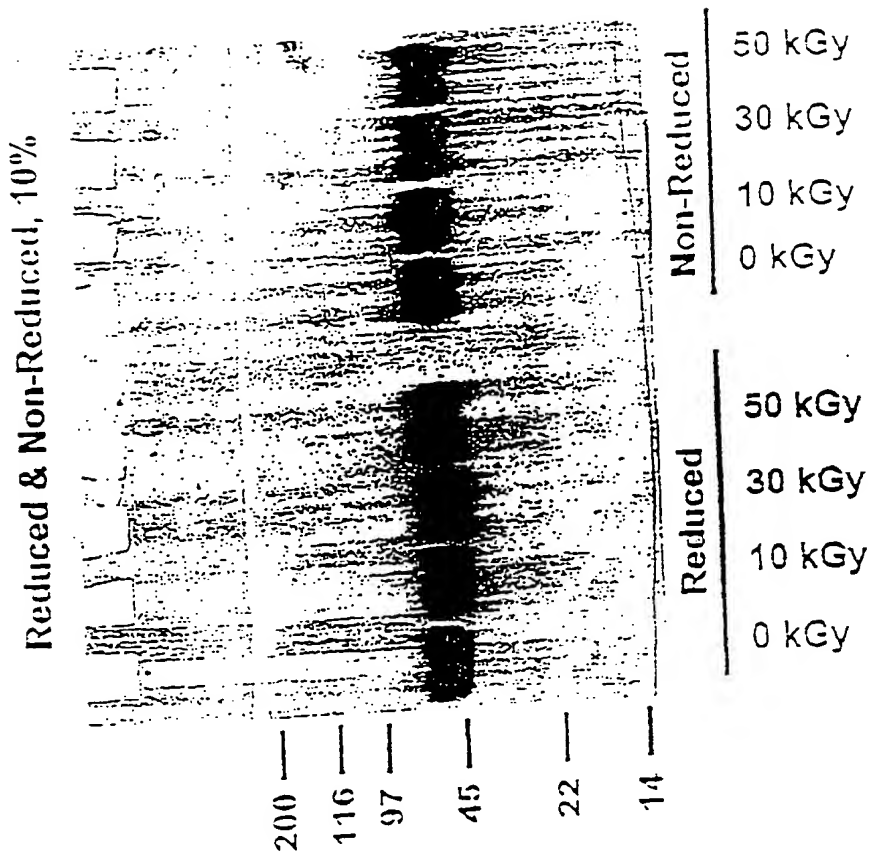
# Gamma Irradiation of a Lyophilized Galactosidase In the Absence of Stabilizers

Reduced and Non-Reduced, 10%





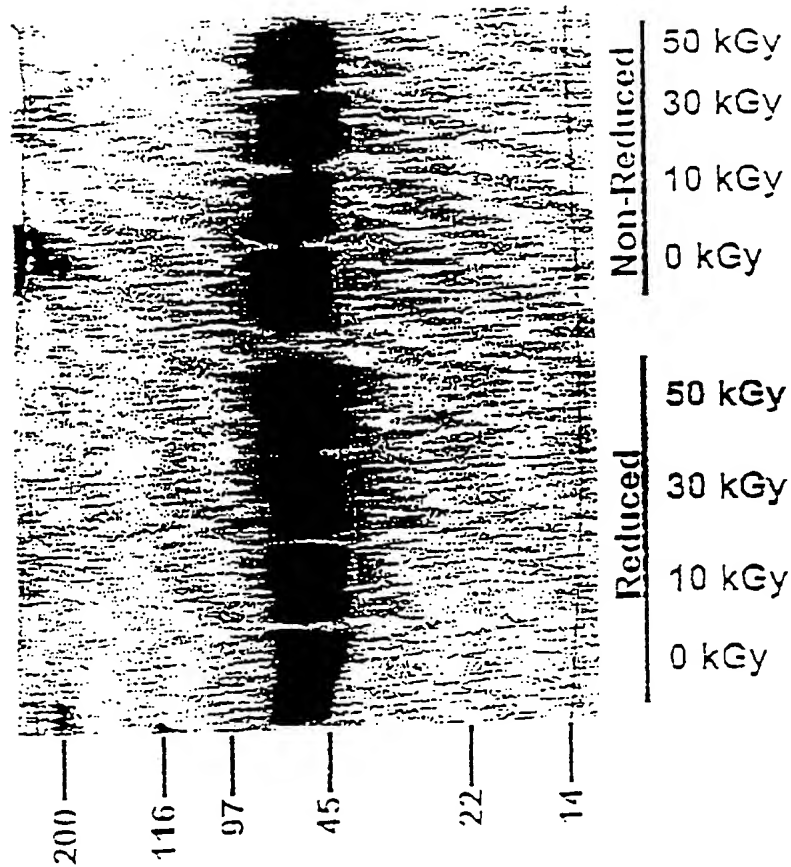
# Gamma Irradiation of a Lyophilized Galactosidase In the Presence of 200mM Ascorbate





# Gamma Irradiation of a Lyophilized Galactosidase In the Presence of 200mM Ascorbate and 200mM Gly-Gly

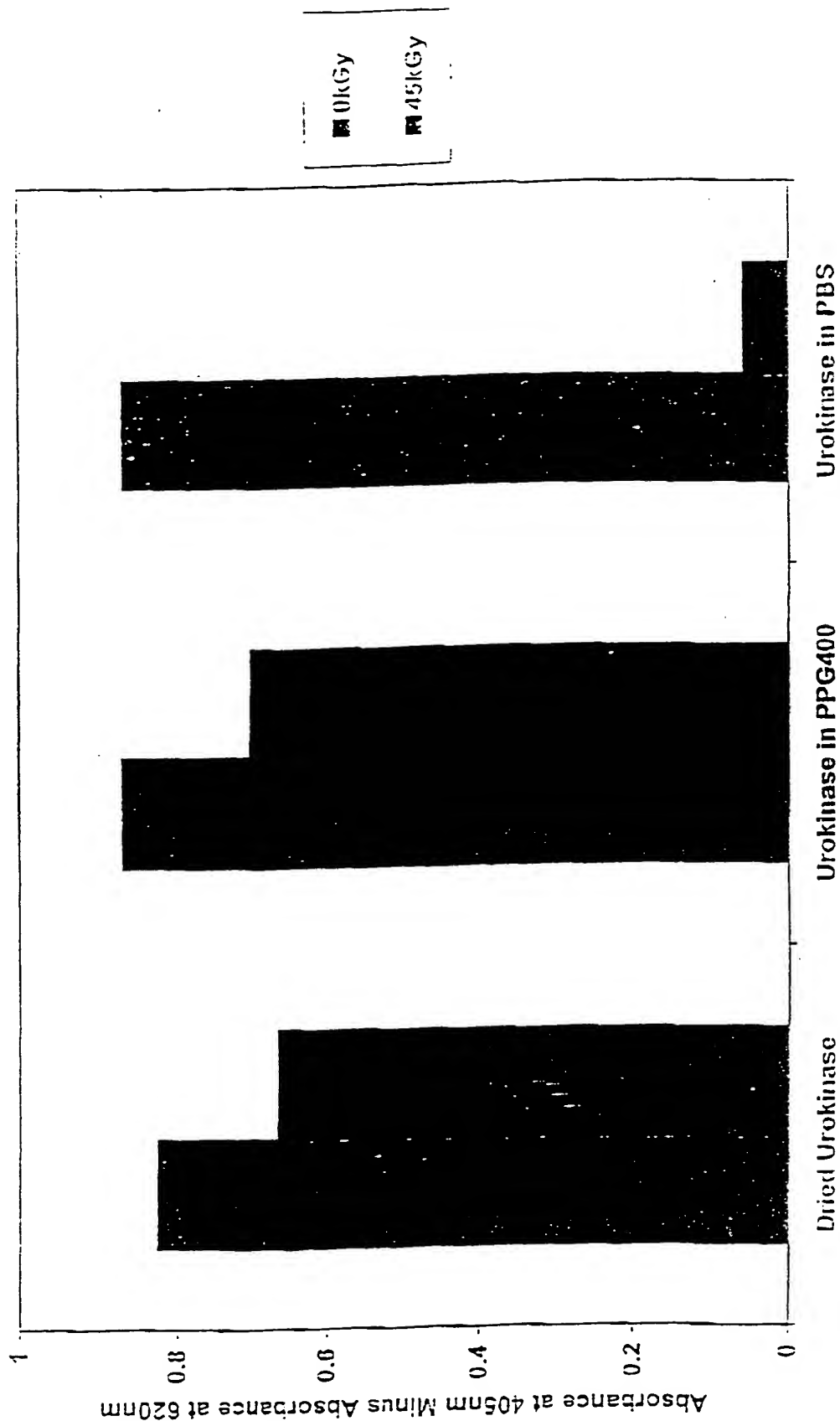
Reduced & Non-Reduced, 10%



10C

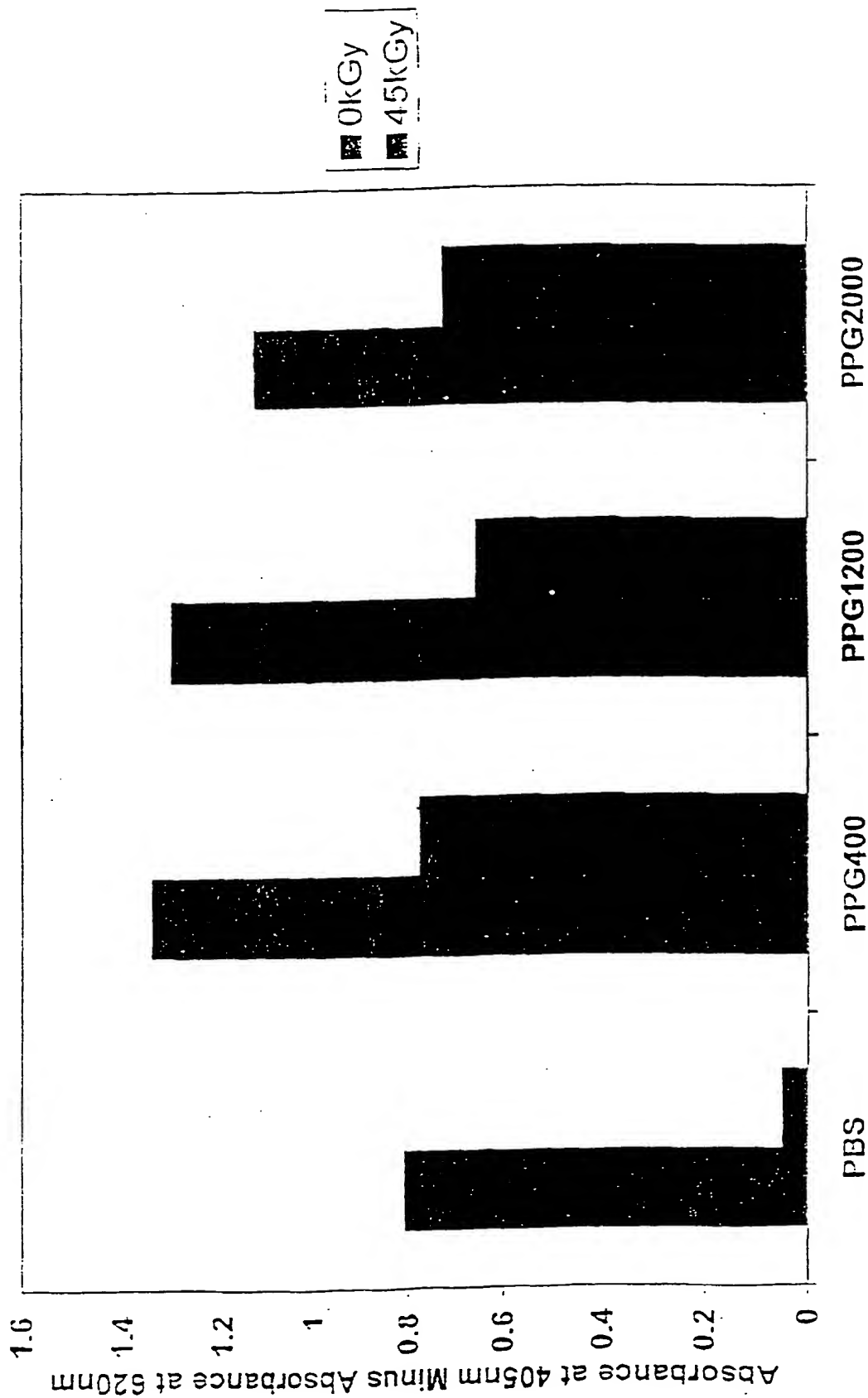


# Gamma Irradiation of Dried Urokinase Suspended in PPG400



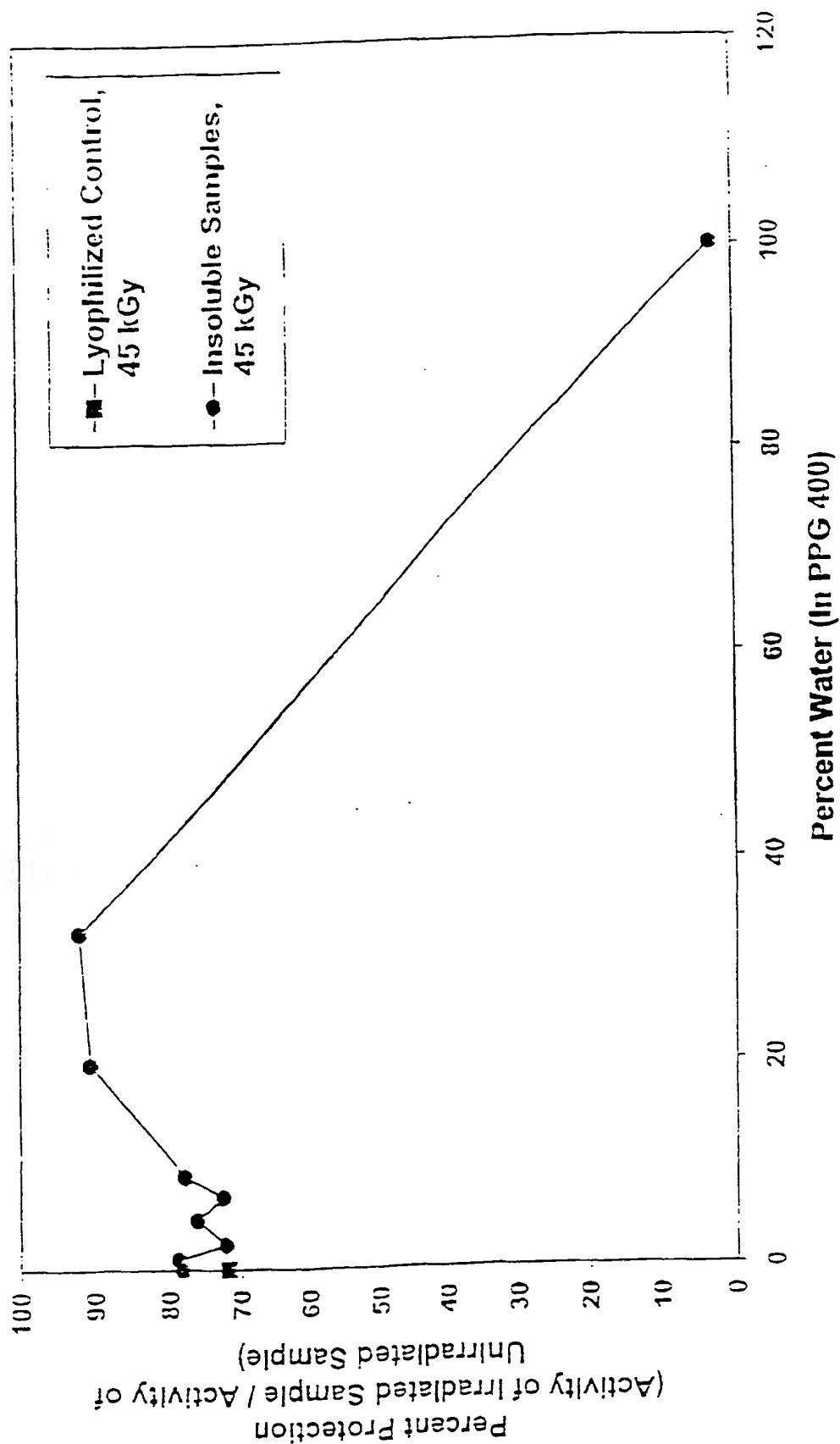


# Gamma Irradiation of Immobilized Monoclonal Antibody in the Presence of various PPGs



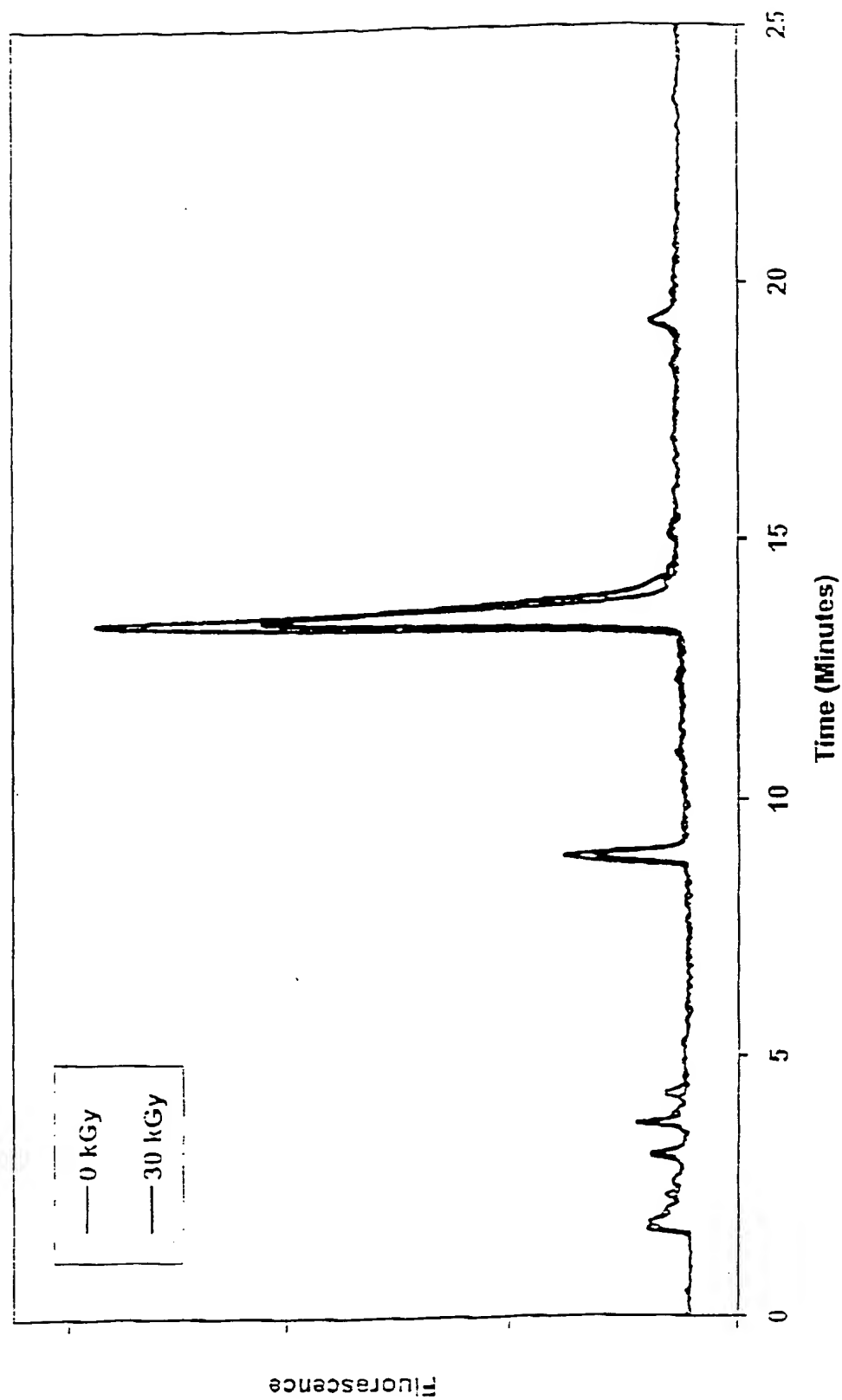


# Gamma Irradiation of Trypsin in the Presence of Increasing Amounts of Added Moisture



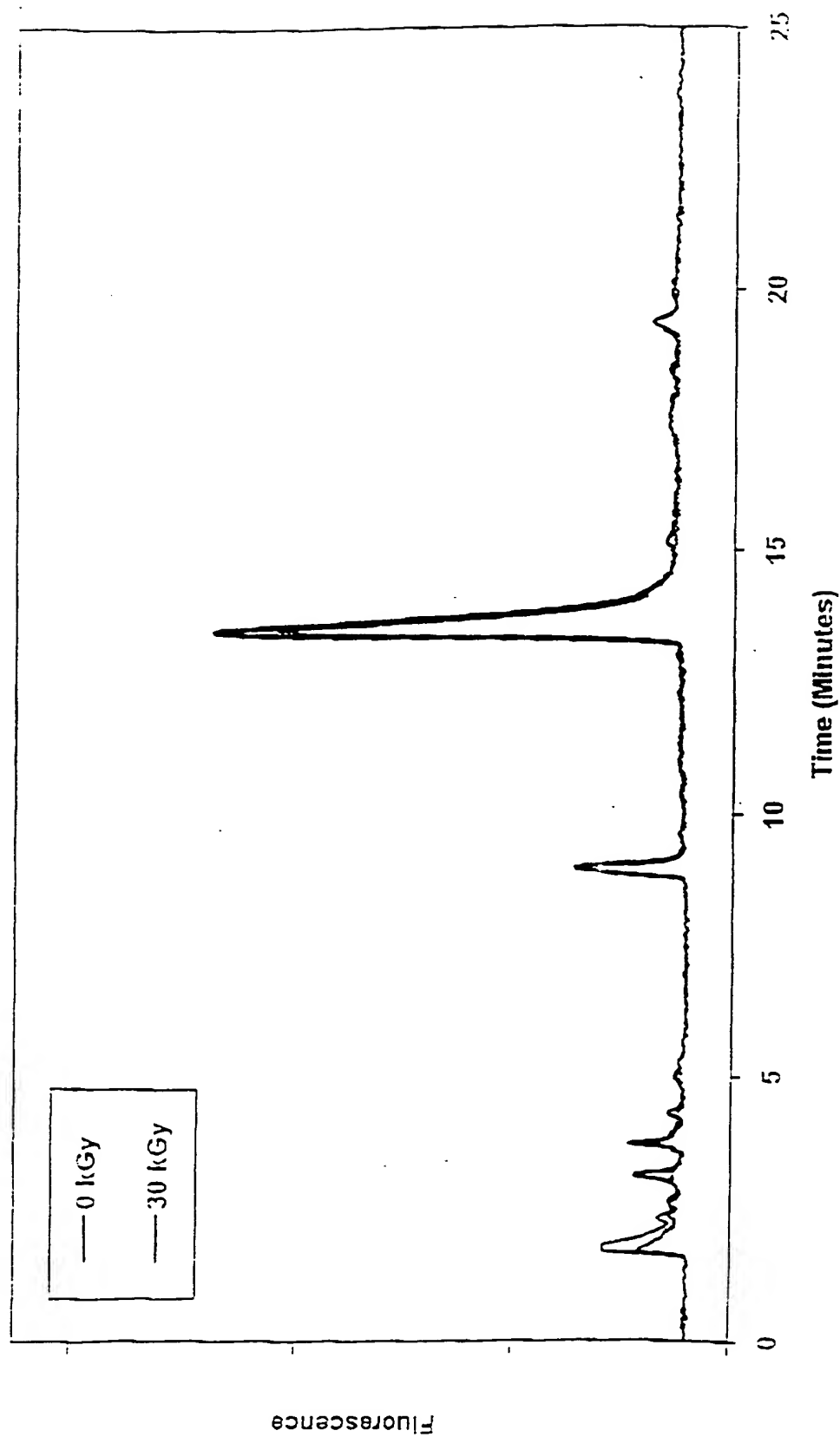


# Gamma Irradiation of Hydrolyzed Heart Valve Cusps in the Presence of PPG 400





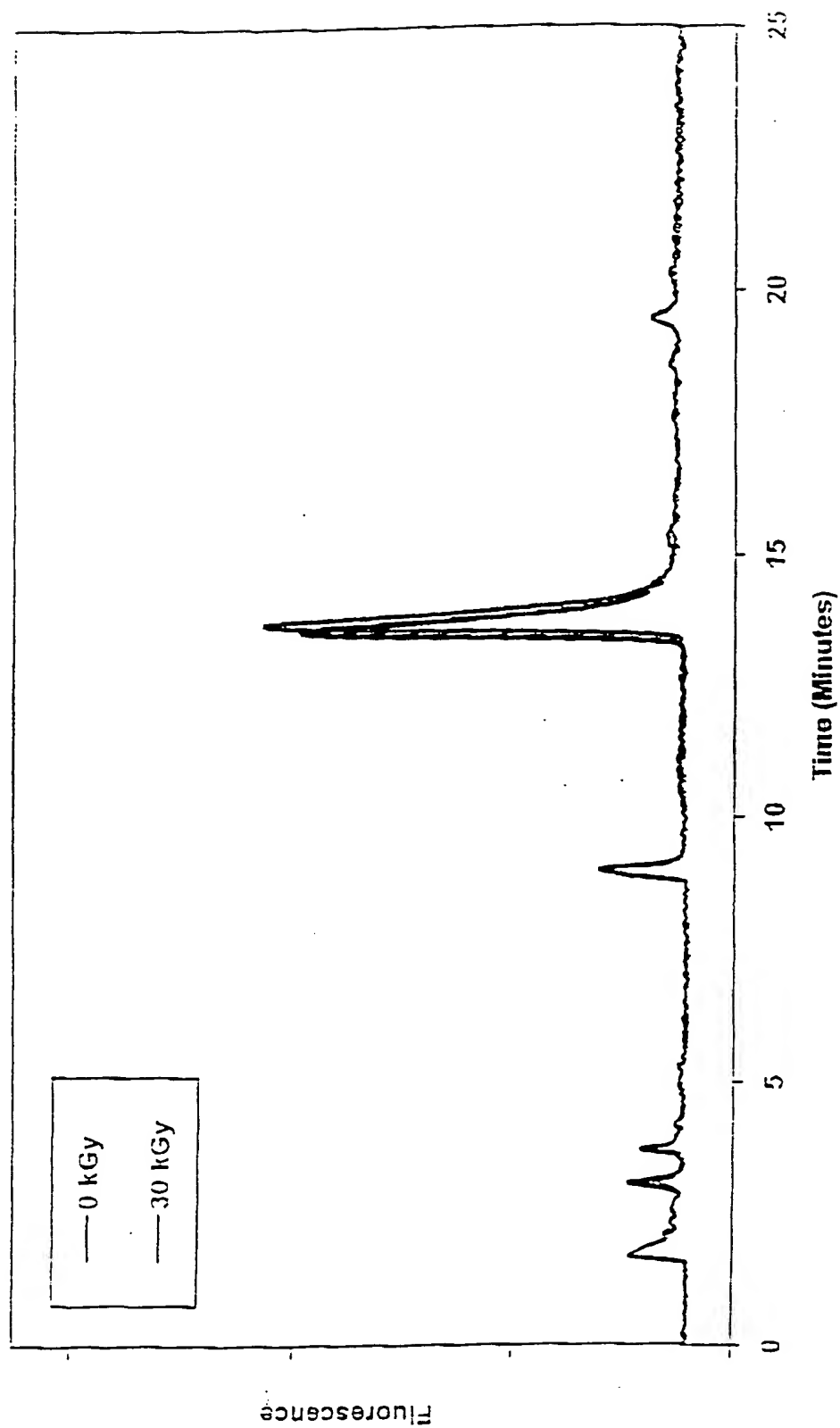
Gamma Irradiation of Hydrolyzed Heart Valve  
Cusps in the Presence of PPG 400 and 125 mM Trolox C



HB



Gamma Irradiation of Hydrolyzed Heart Valve Cusps in the Presence  
of PPG 400 and a Stabilizer Mixture of 62.5mM Trolox, 100mM Lipoic  
Acid, 100mM Coumaric Acid, and 100mM n-Propyl Gallate





# Gamma Irradiation of Porcine Heart Valve Cusps in the Presence of PPG400 with Various Stabilizers

1. Molecular Weight Markers

2. Blank

3. PPG400, 0 kGy

4. PPG400, 30 kGy

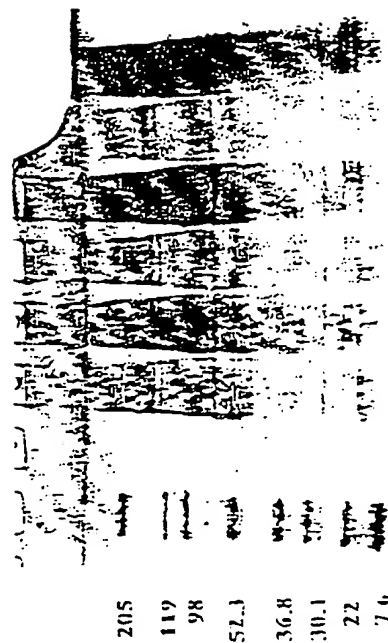
5. PPG400 and Trolox, 0 kGy

6. PPG400 and Trolox, 30 kGy

7. PPG400 and a Cocktail of Trolox, Lipoic Acid, Coumaric Acid, and n-Propyl Gallate, 0 kGy

8. PPG400 and a Cocktail of Trolox, Lipoic Acid, Coumaric Acid, and n-Propyl Gallate, 30kGy

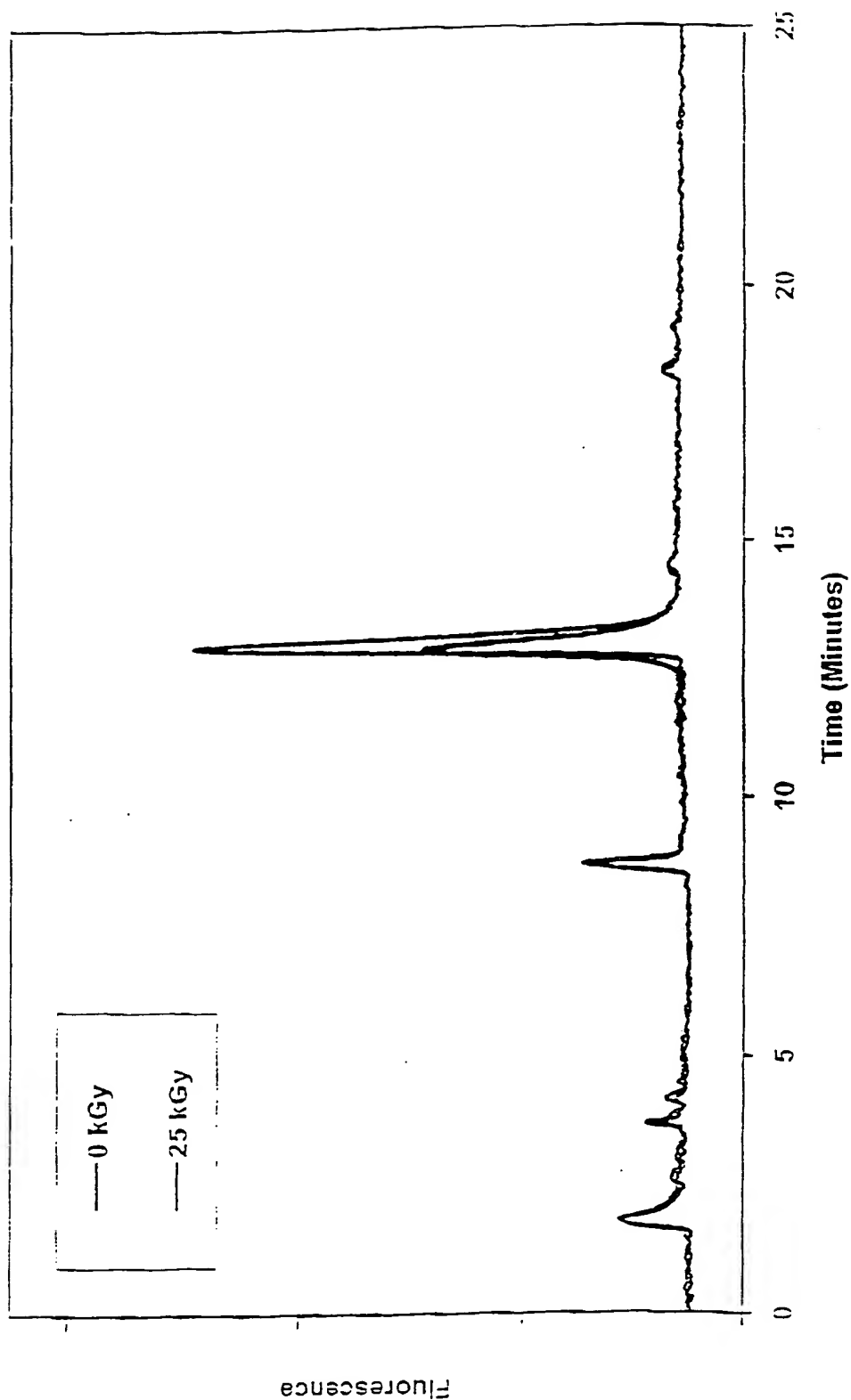
Reduced



1 2 3 4 5 6 7 8



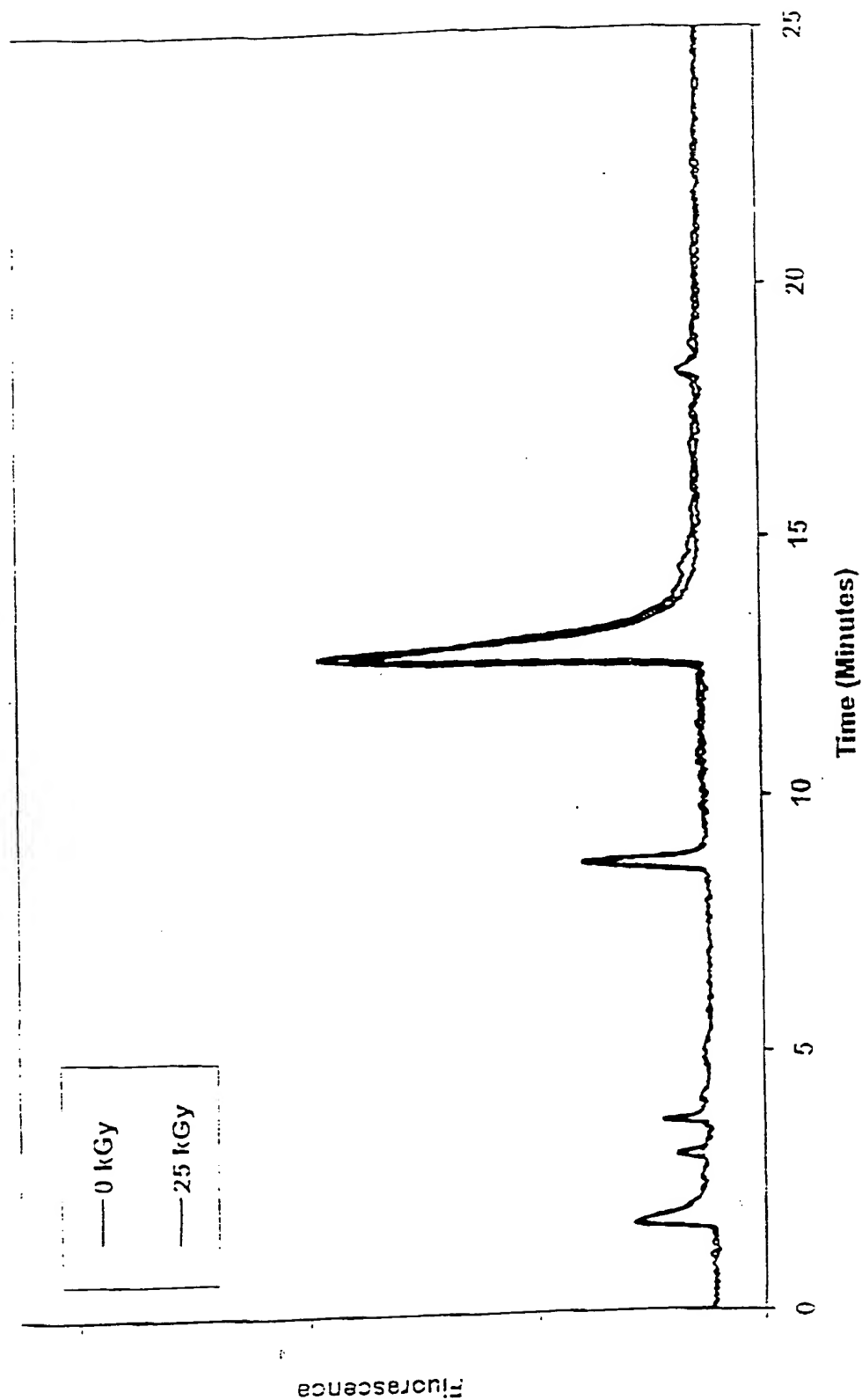
# Gamma Irradiation of Hydrolyzed Heart Valve Cusps in the Presence of PBS





TOP SECRET

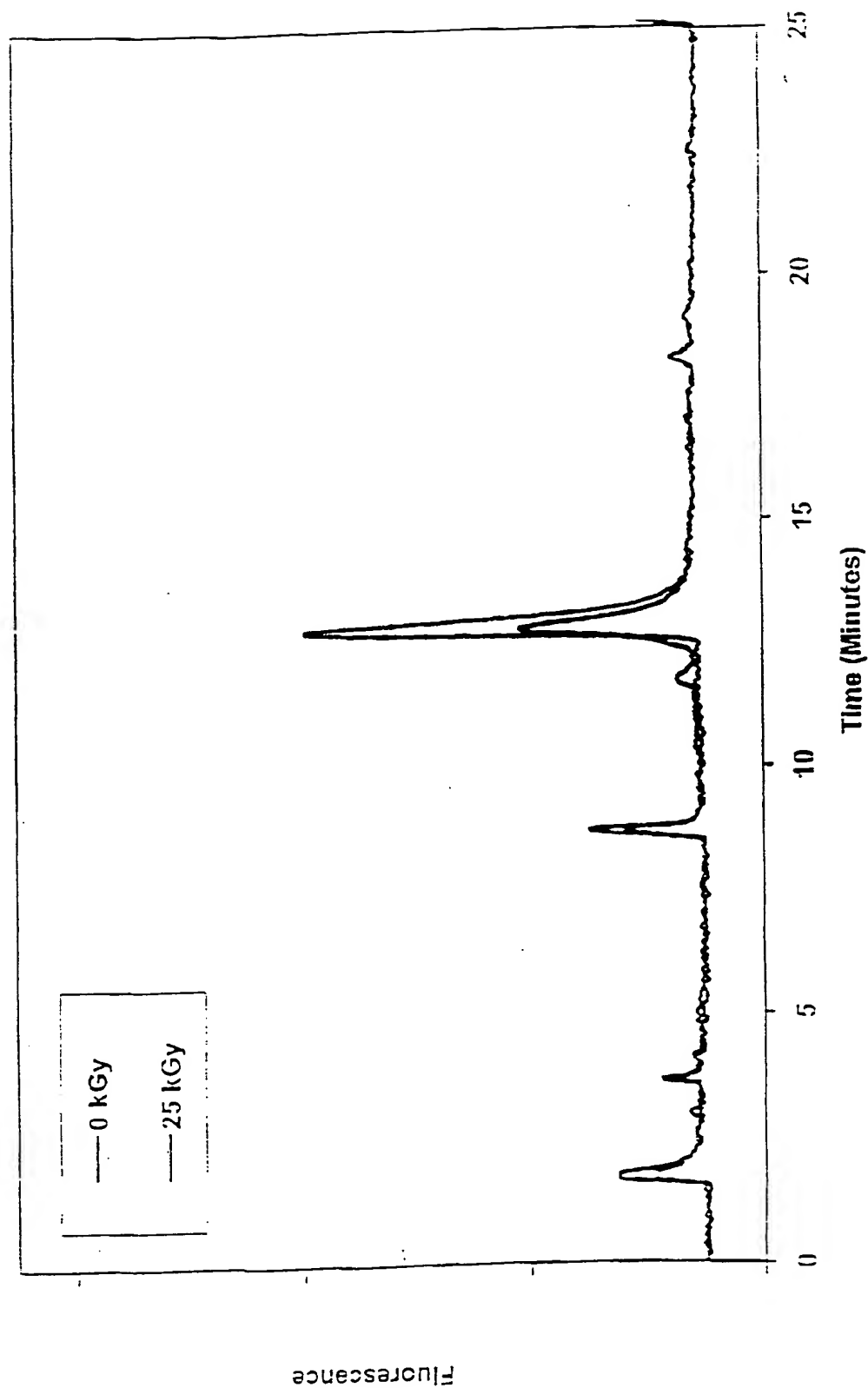
# Gamma Irradiation of Hydrolyzed Heart Valve Cusps in the Presence of PPG 400



15B



# Gamma Irradiation of Hydrolyzed Heart Valve Cusps in the Presence of 50% DMSO



ISC

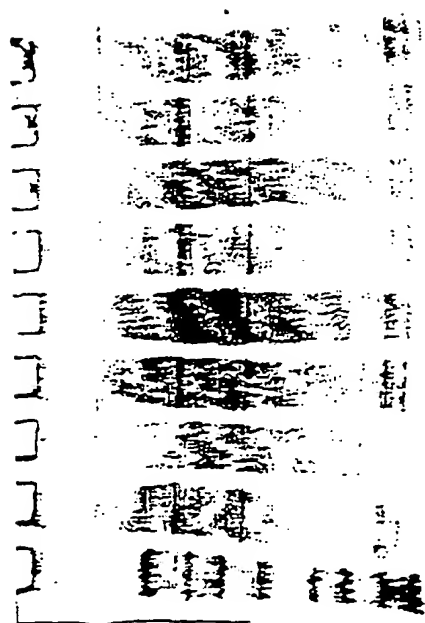






# Gamma Irradiation of Porcine Heart Valve Cusps in the Presence of Various Solvents

1. Molecular Weight Markers



Reduced

2. PBS, 0 kGy

3. PBS, 25 kGy

4. PPG400, 0 kGy

5. PPG400, 25 kGy

6. 50% DMSO, 0 kGy

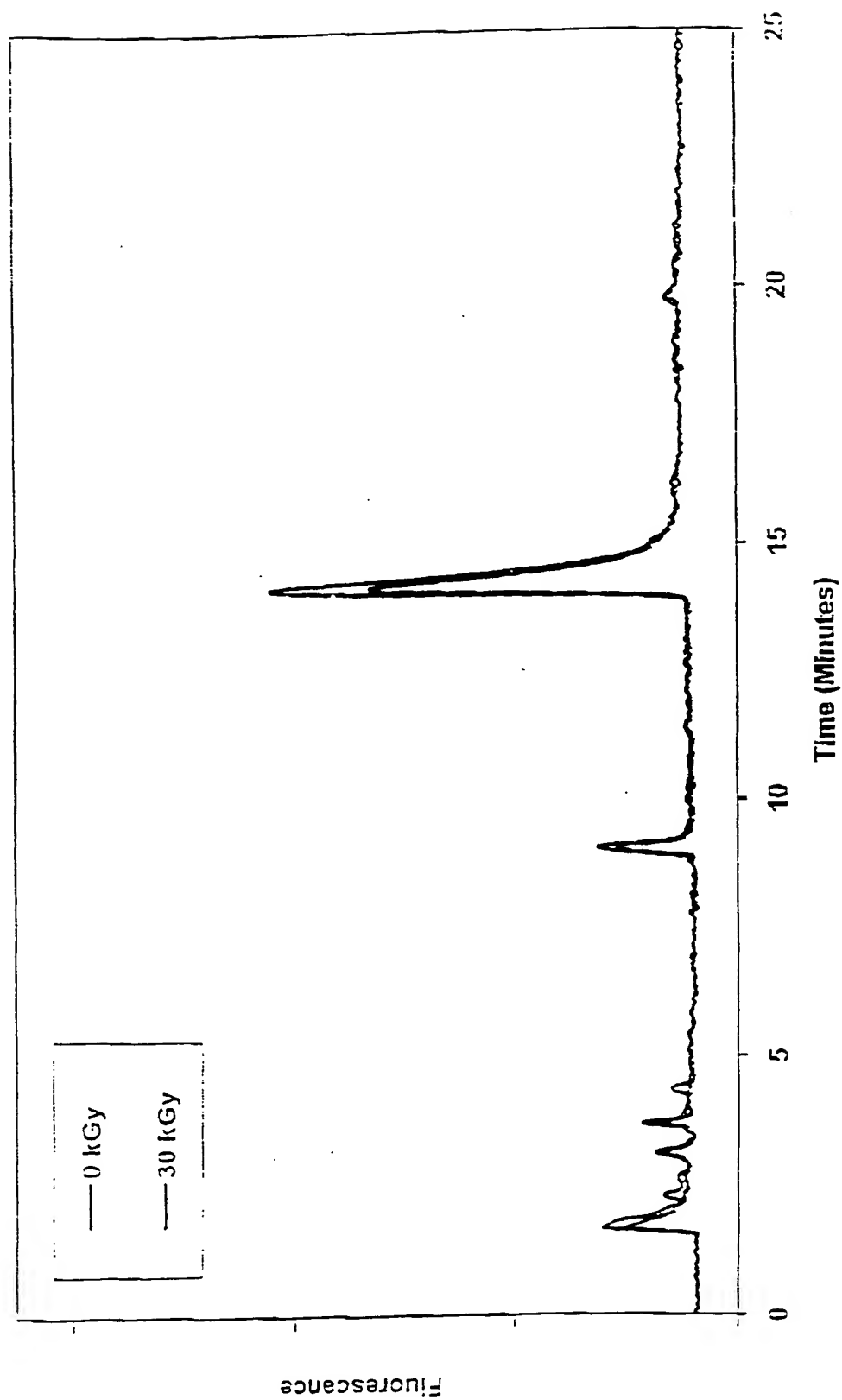
7. 50% DMSO, 25 kGy

8. 50% DMSO and Cocktail of Ascorbate, Coumaric Acid, and n-Propyl Gallate, 0 kGy

9. 50% DMSO and Cocktail of Ascorbate, Coumaric Acid, and n-Propyl Gallate, 25 kGy

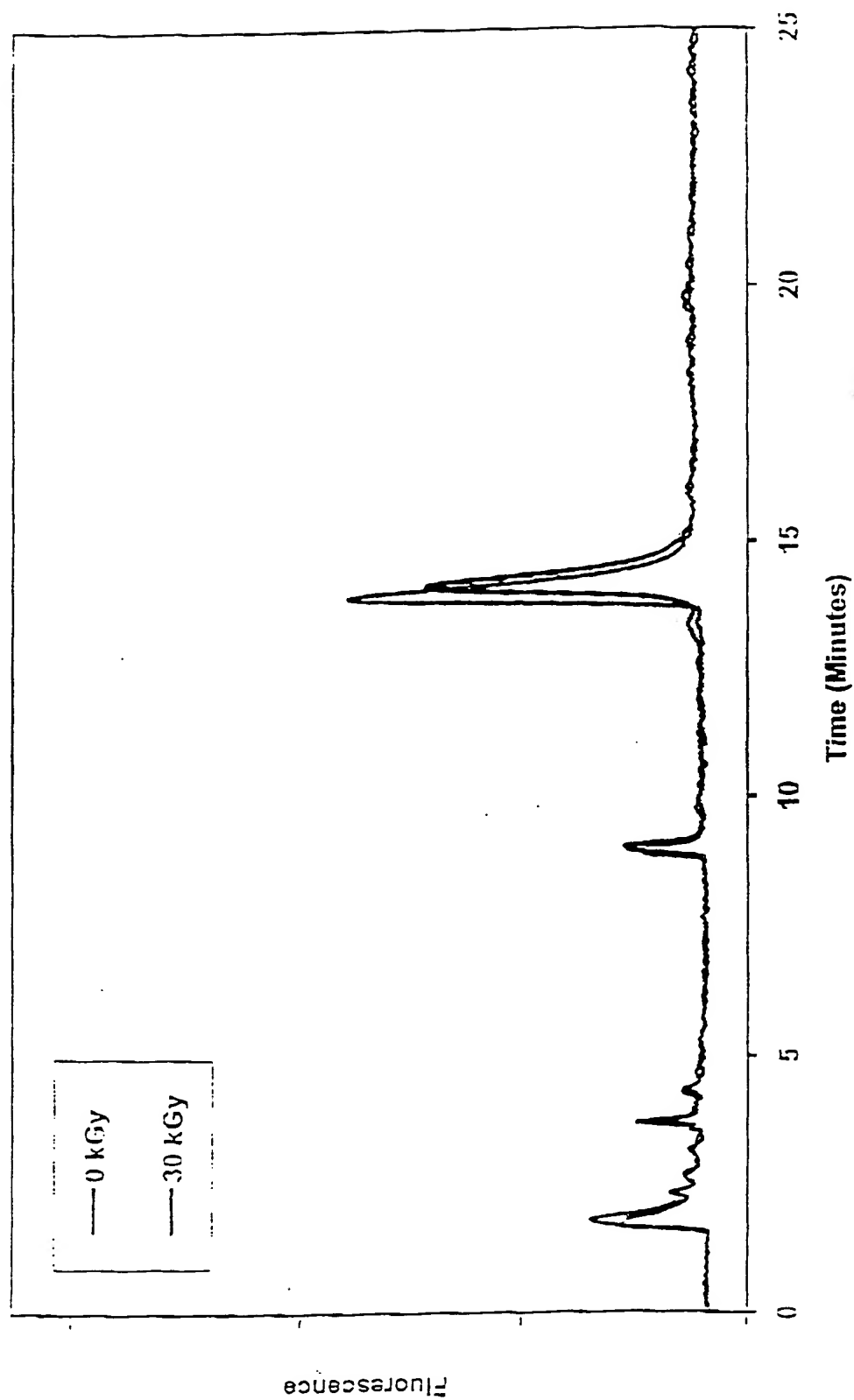


# Gamma Irradiation of Hydrolyzed Heart Valve Cusps in the Presence of PBS



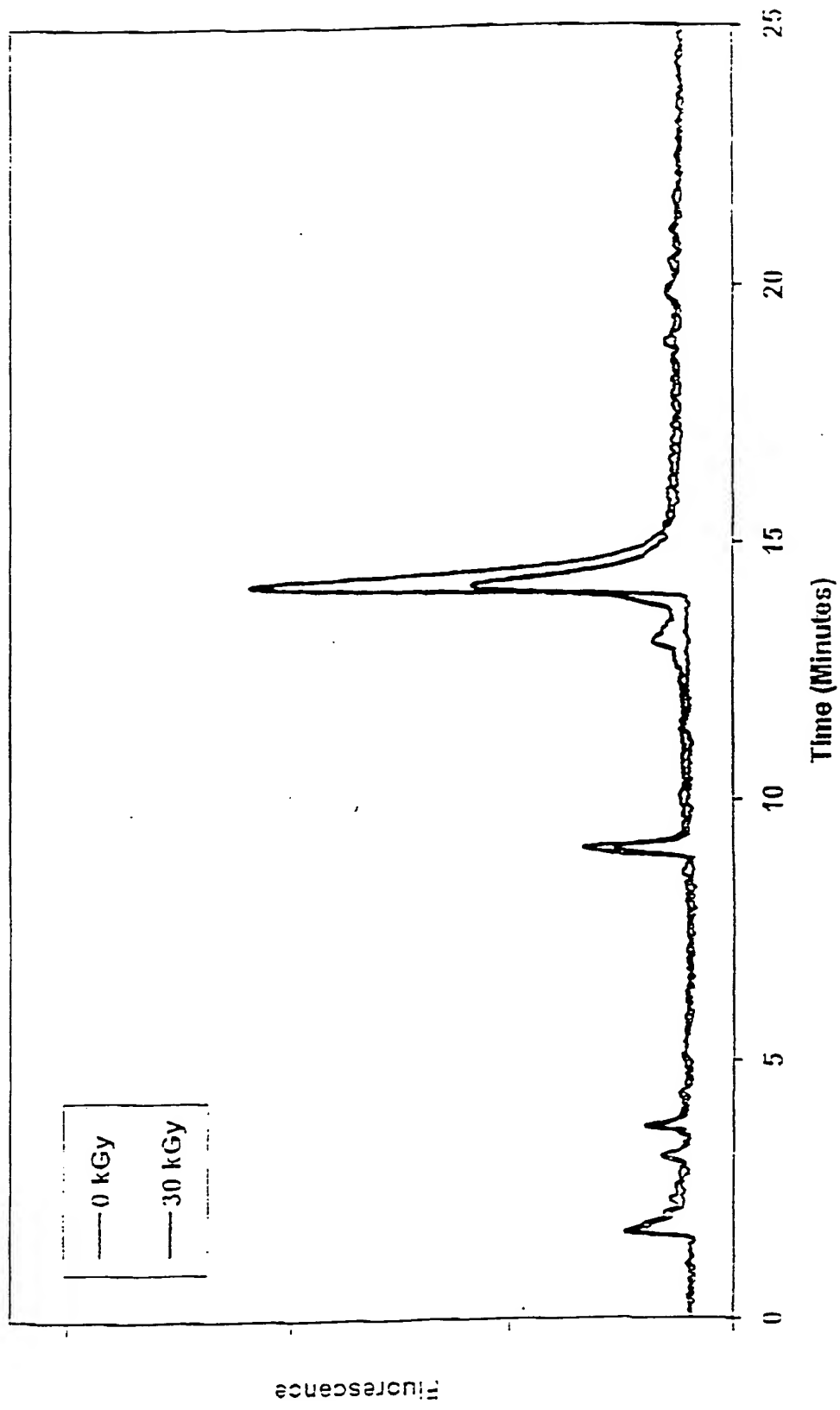


**Gamma Irradiation of Hydrolyzed Heart Valve Cusps in the  
Presence of a Cryopreservative (Containing Approximately 20% DMSO)**



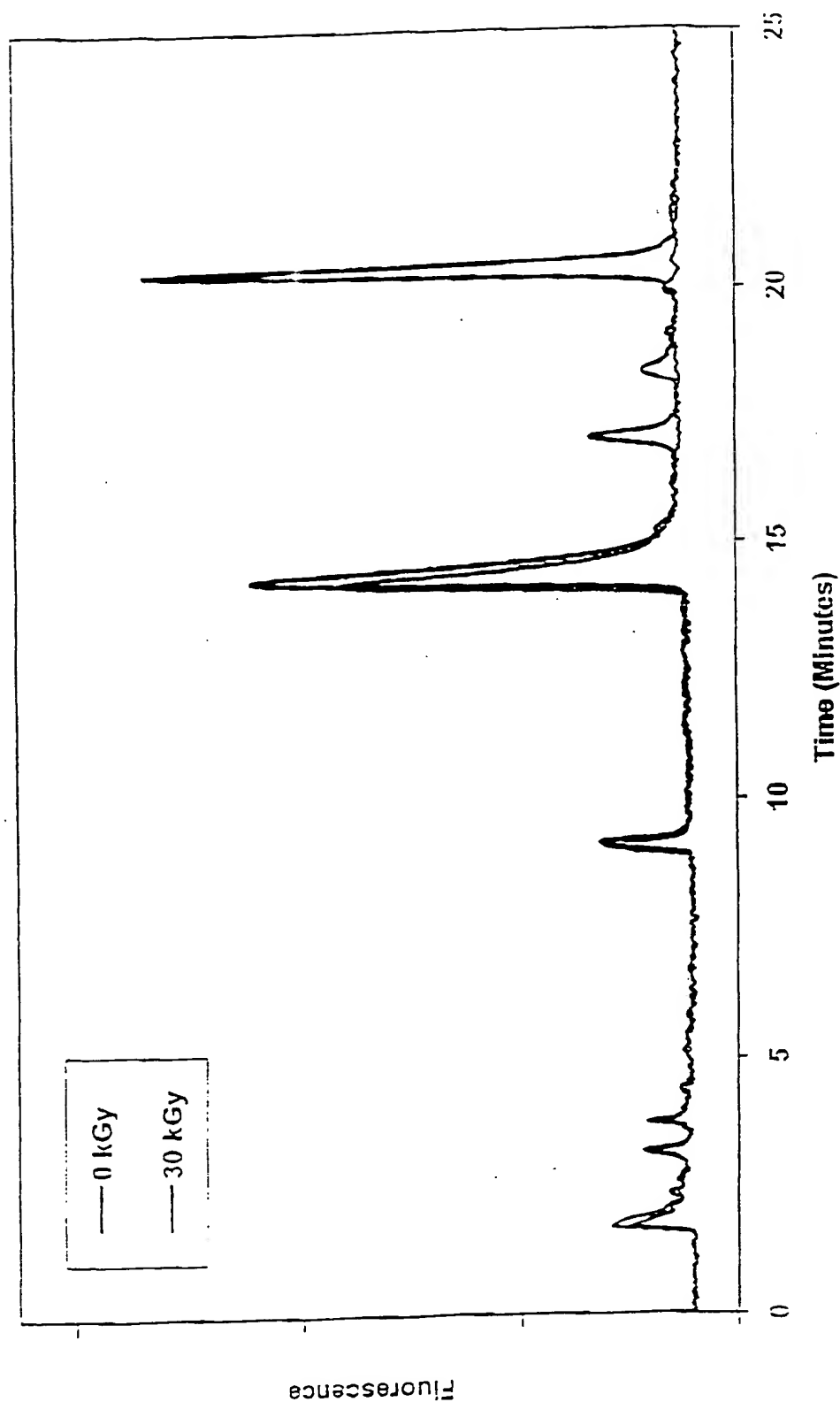


# Gamma Irradiation of Hydrolyzed Heart Valve Cusps in the Presence of 50% DMSO





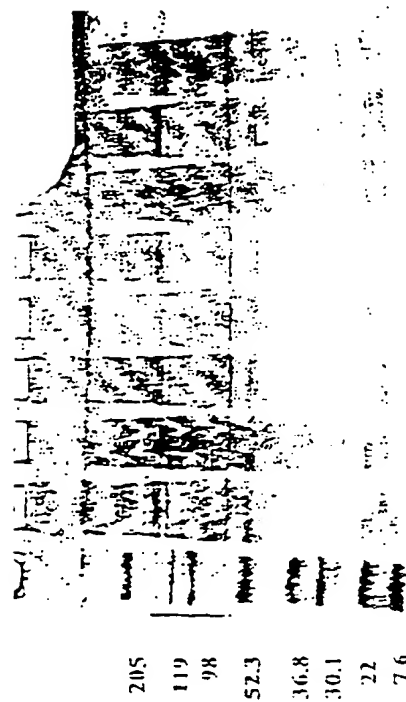
# Gamma Irradiation of Hydrolyzed Heart Valve Cusps in the Presence of 50% DMSO and Ascorbate





# Gamma Irradiation of Porcine Heart Valve Cusps in the Presence of Various Solvents

Reduced



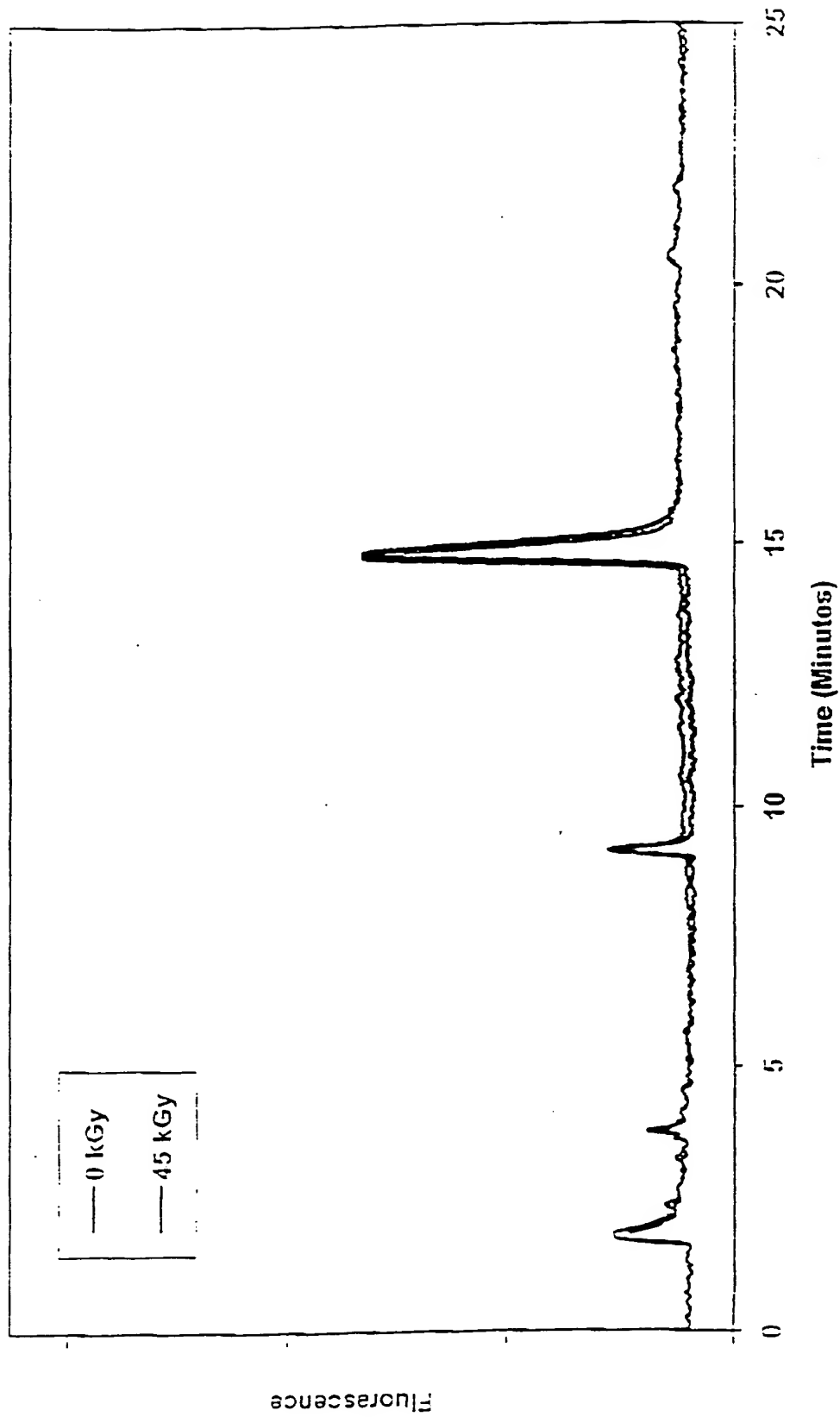
1. Molecular Weight Markers
2. Cryopreservative, 0 kGy
3. Cryopreservative, 30 kGy
4. PBS, 0 kGy
5. PBS, 30 kGy
6. 50% DMSO, 0 kGy
7. 50% DMSO, 30 kGy
8. 50% DMSO and Ascorbate, 0 kGy
9. 50% DMSO and Ascorbate, 30 kGy

1 2 3 4 5 6 7 8 9

16E

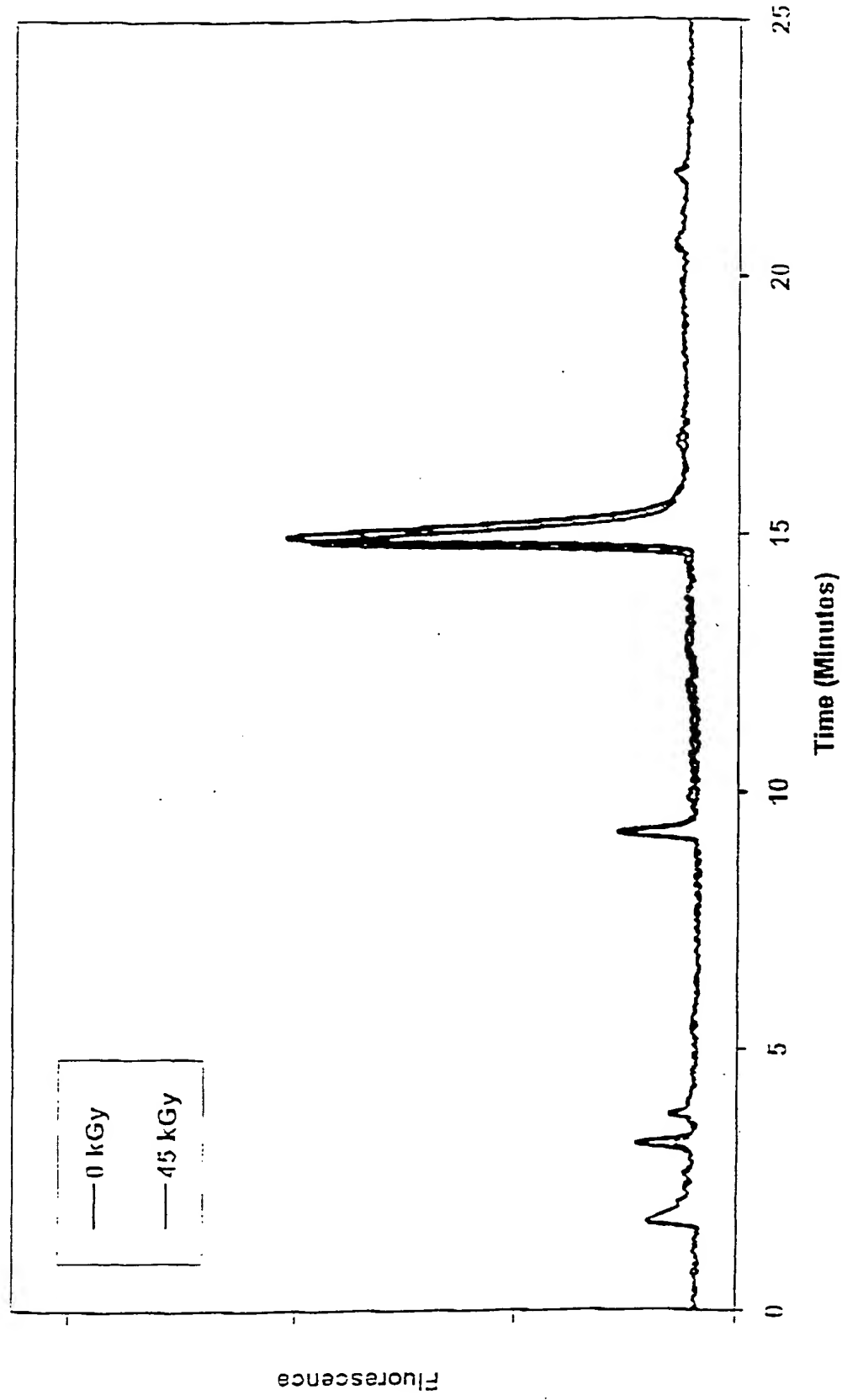


# Gamma Irradiation of Hydrolyzed Heart Valve Cusps in the Presence of PBS



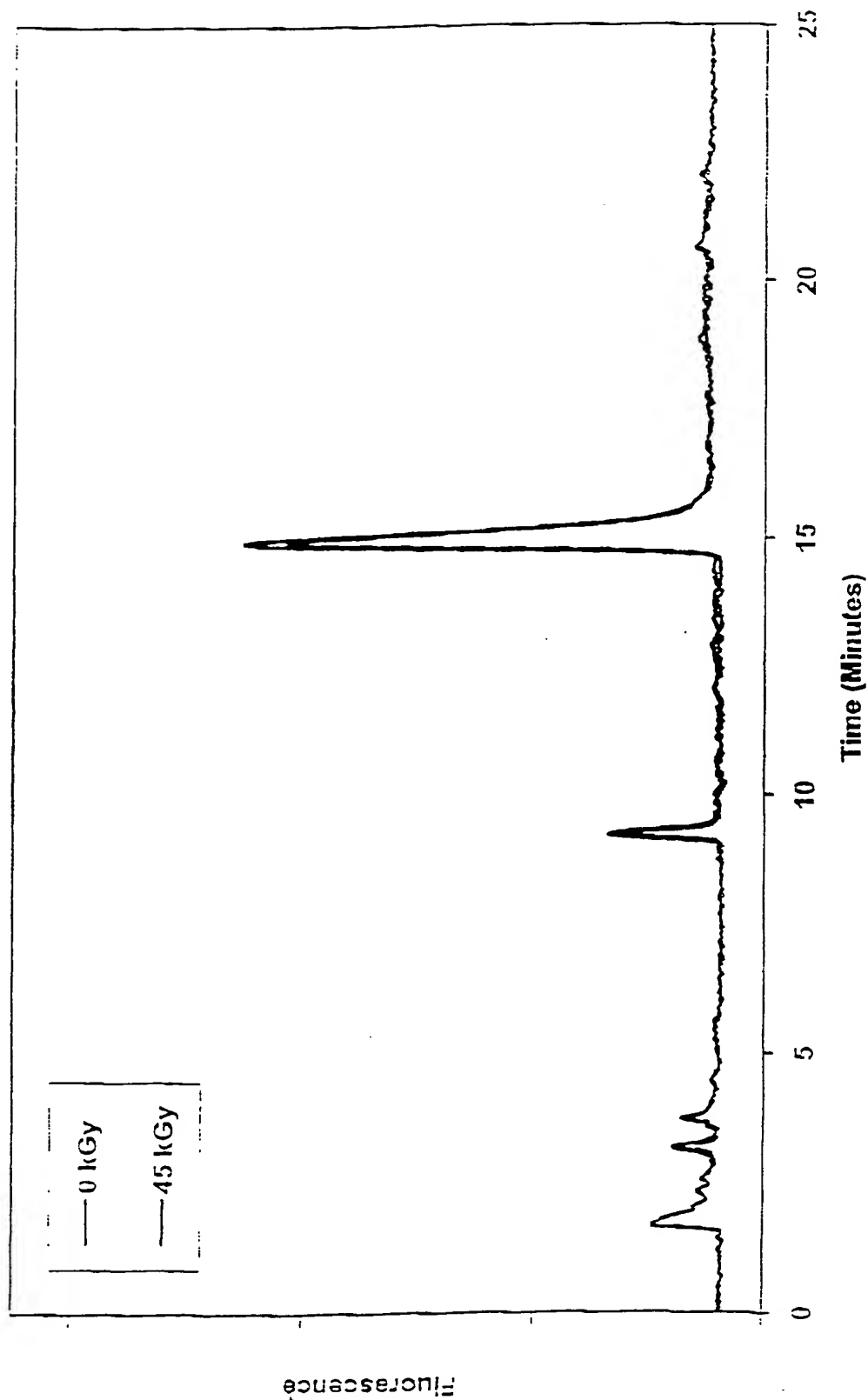


# Gamma Irradiation of Hydrolyzed Heart Valve Cusps in the Presence of PBS and Ascorbate



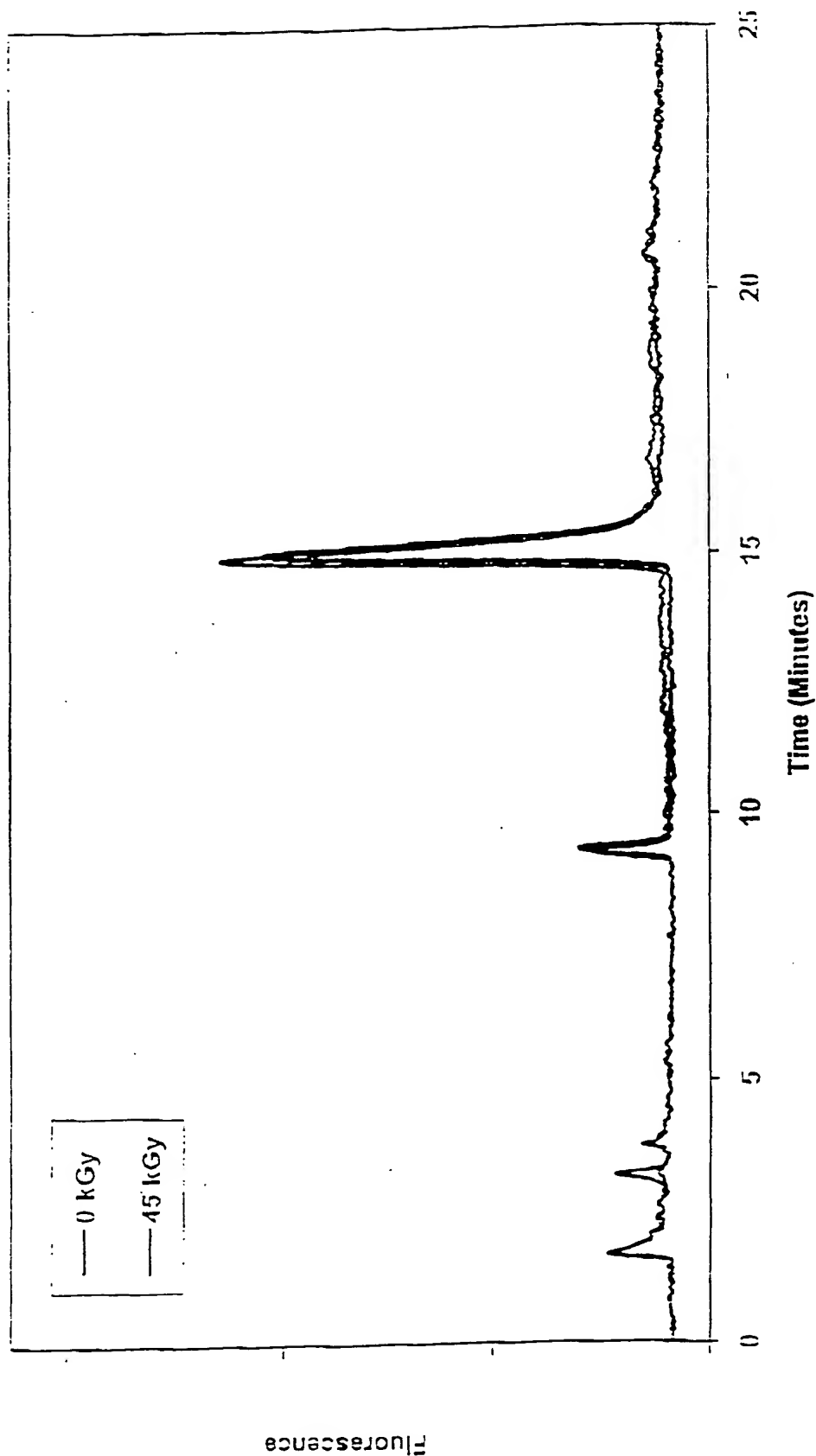


Gamma Irradiation of Hydrolyzed Heart Valve Cusps  
in the Presence of PPG 400



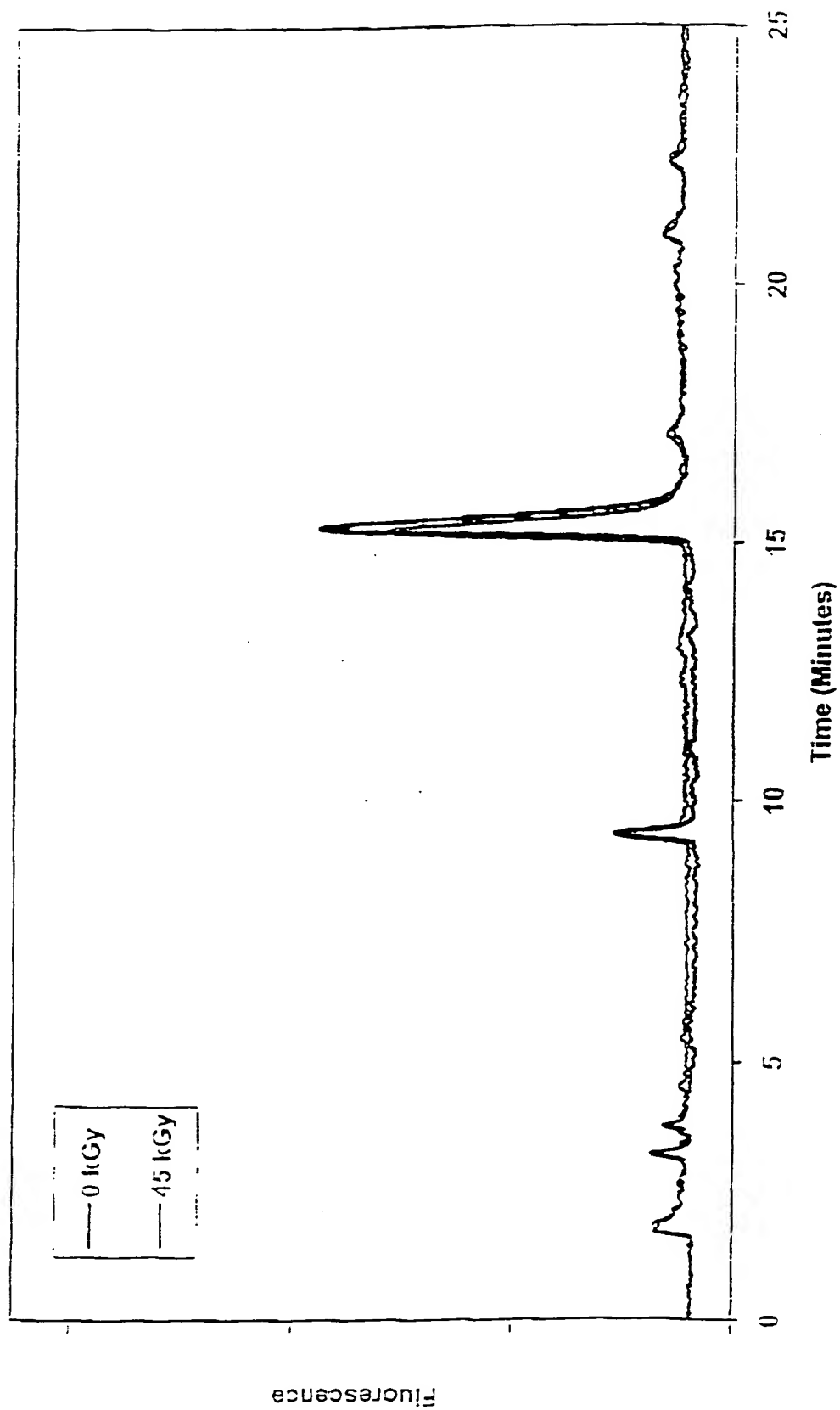


# Gamma Irradiation of Hydrolyzed Heart Valve Cusps Dehydrated with PPG 400 and Rehydrated in the Presence of PBS and Ascorbate



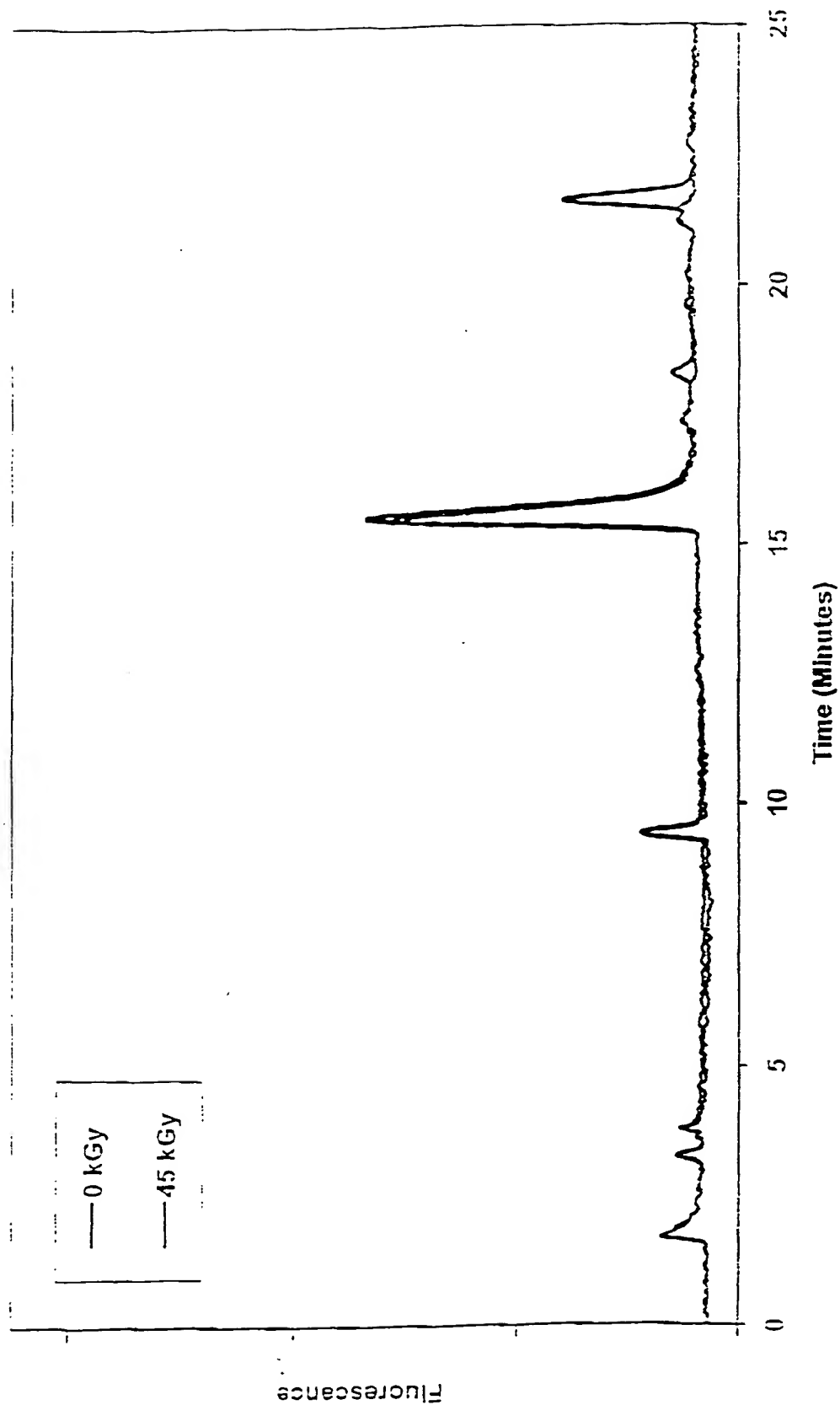


# Gamma Irradiation of Hydrolyzed Heart Valve Cusps in the Presence of 50% DMSO





# Gamma Irradiation of Hydrolyzed Heart Valve Cusps in the Presence of 50% DMSO and Ascorbate





# Gamma Irradiation of Porcine Heart Valve Cusps in the Presence of Various Solvents

1. Molecular Weight Markers

2. PBS, 0 kGy

3. PBS, 45 kGy

4. PBS and Ascorbate, 0 kGy

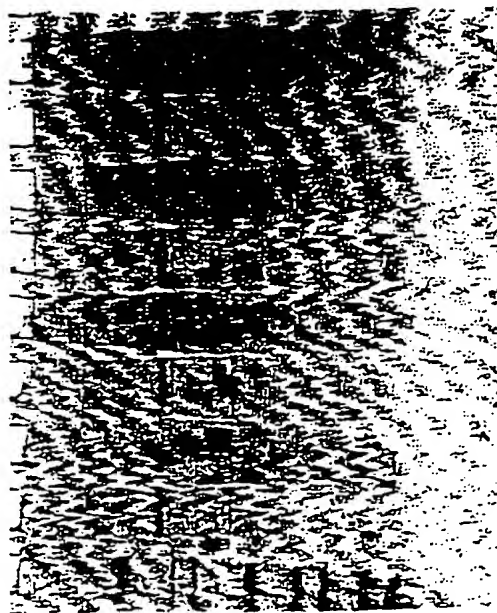
5. PBS and Ascorbate, 45 kGy

6. PPG400, 0 kGy

7. PPG400, 45 kGy

8. Dehydrated in PPG400 and Rehydrated  
with PBS and Ascorbate, 0 kGy

9. Dehydrated in PPG400 and Rehydrated  
with PBS and Ascorbate, 45 kGy

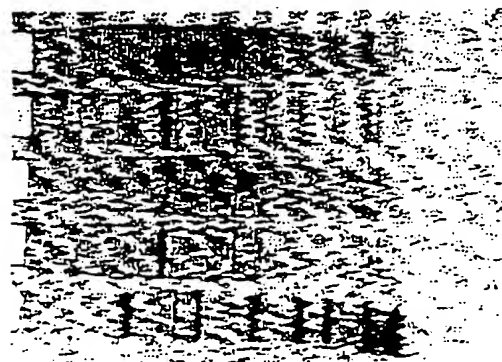


205  
119  
98  
52.3  
36.8  
30.1  
22  
7.6

1 2 3 4 5 6 7 8 9



# Gamma Irradiation of Porcine Heart Valve Cusps in the Presence of Various Solvents



1. Molecular Weight Markers
2. 50% DMSO, 0 kGy
3. 50% DMSO, 45 kGy
4. 50% DMSO and Ascorbate, 0 kGy
5. 50% DMSO and Ascorbate, 45 kGy

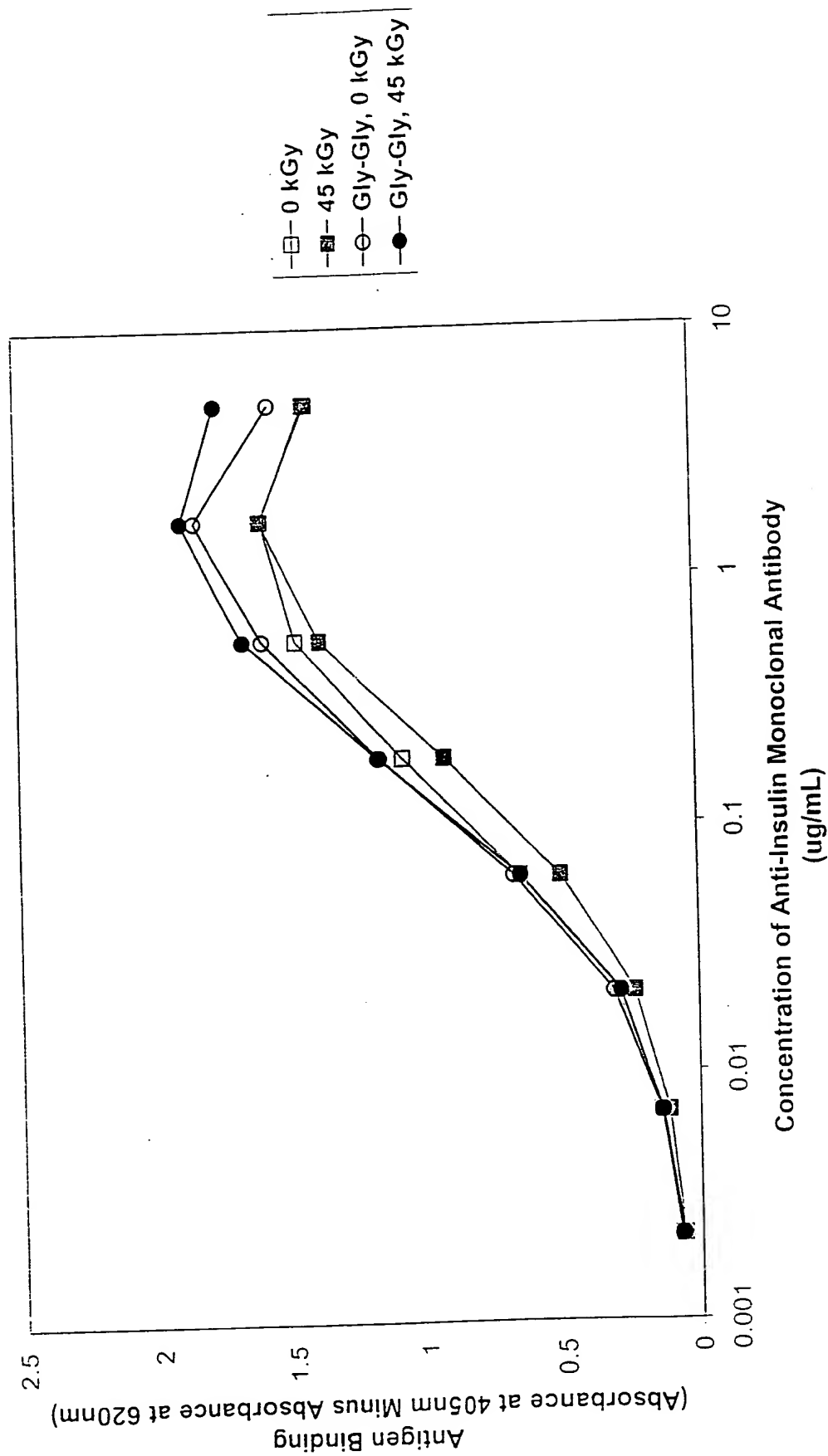
205  
119  
98  
52.3  
36.8  
30.1  
22  
7.6

1 2 3 4 5

(7H)

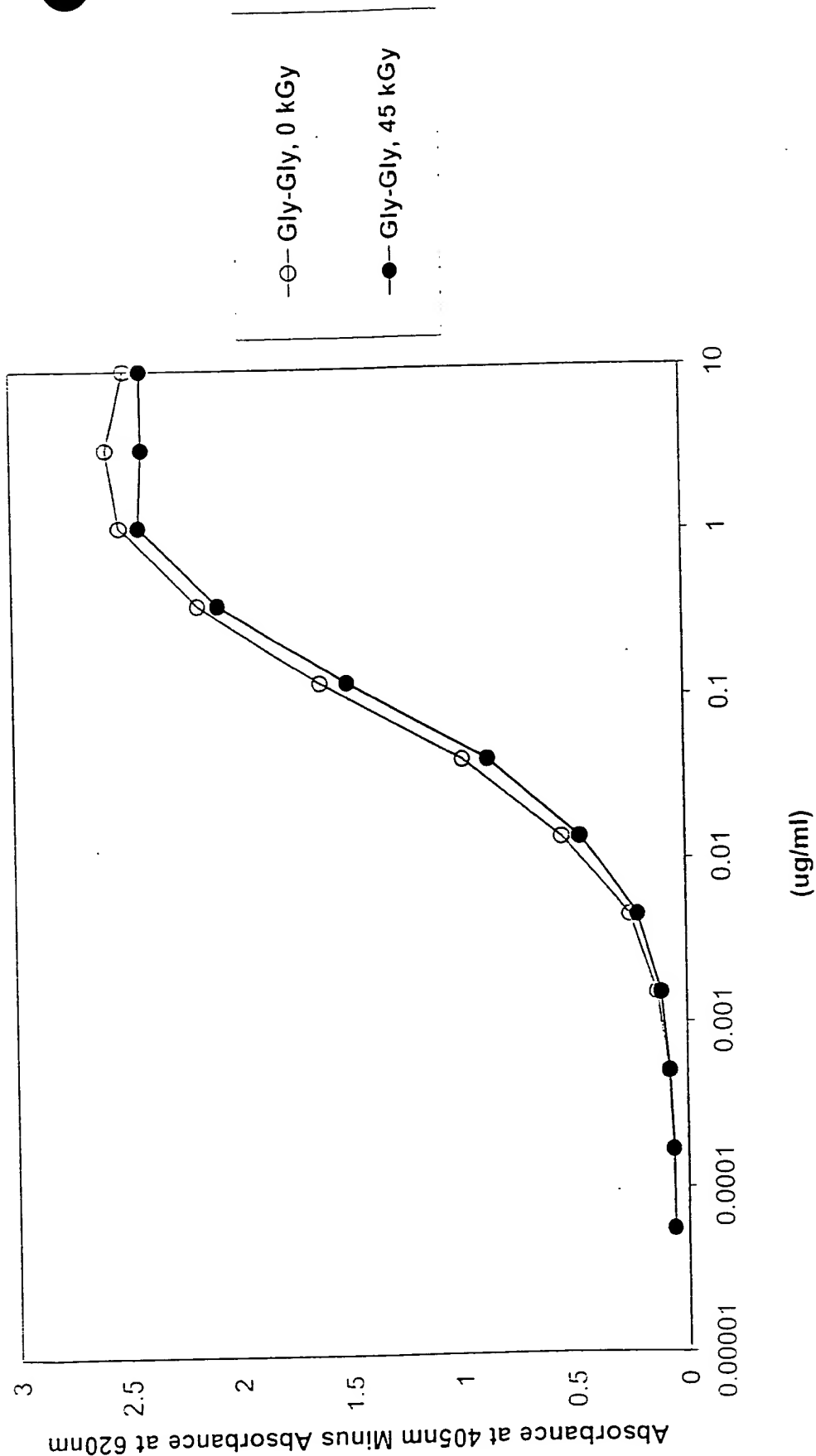


Gamma Irradiation of Freeze-Dried Anti-Insulin Monoclonal Antibody in the Presence or Absence of 20 mM Gly-Gly (1% HSA)



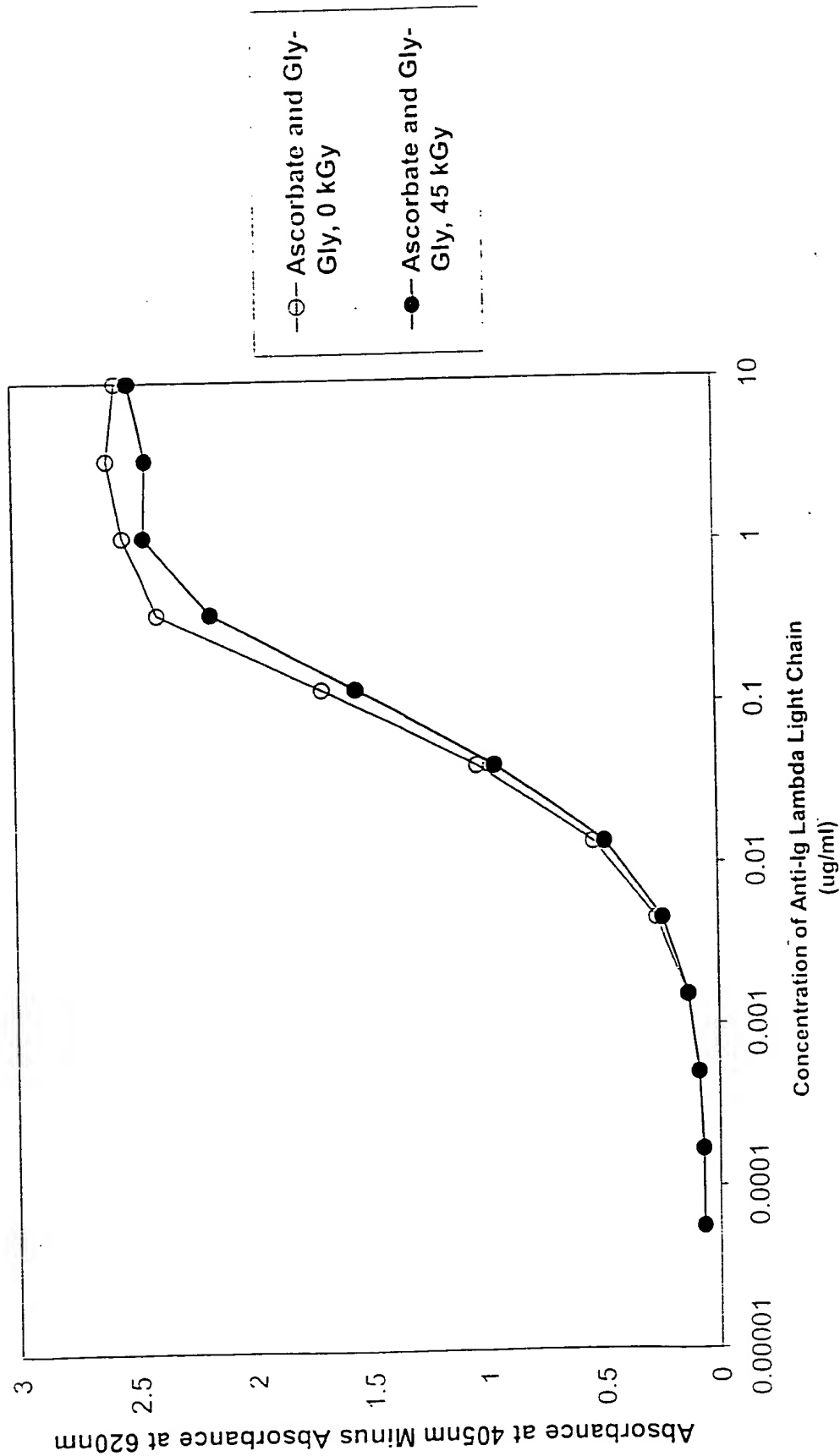


Gamma Irradiation of Freeze-Dried Anti-Human Ig, Lambda Light Chain, in the Presence or Absence of 20 mM Gly-Gly



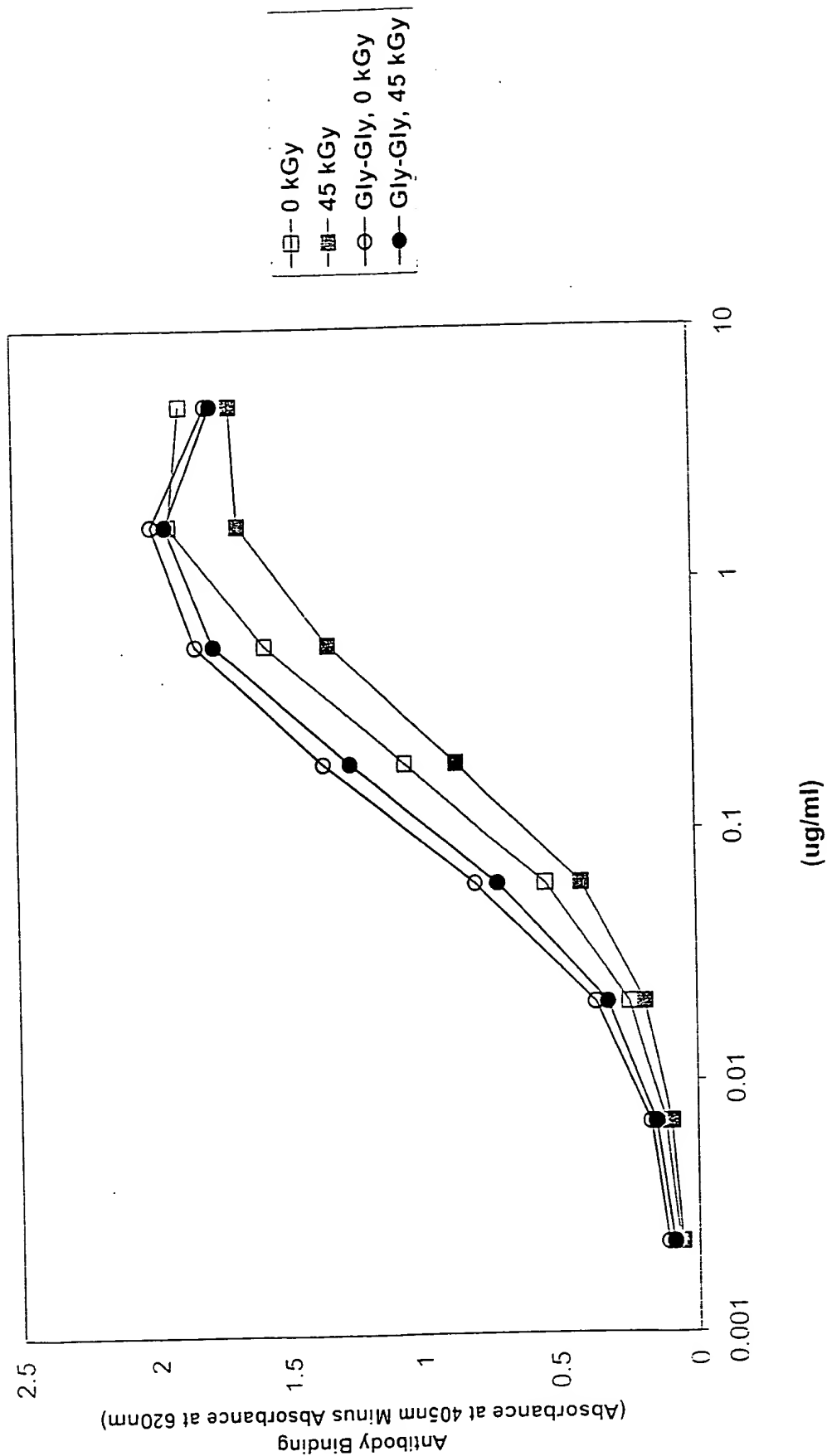


Gamma Irradiation of Freeze-Dried Anti-Human Ig, Lambda Light Chain, in the Presence or Absence of 20 mM Ascorbate and 20 mM Gly-Gly



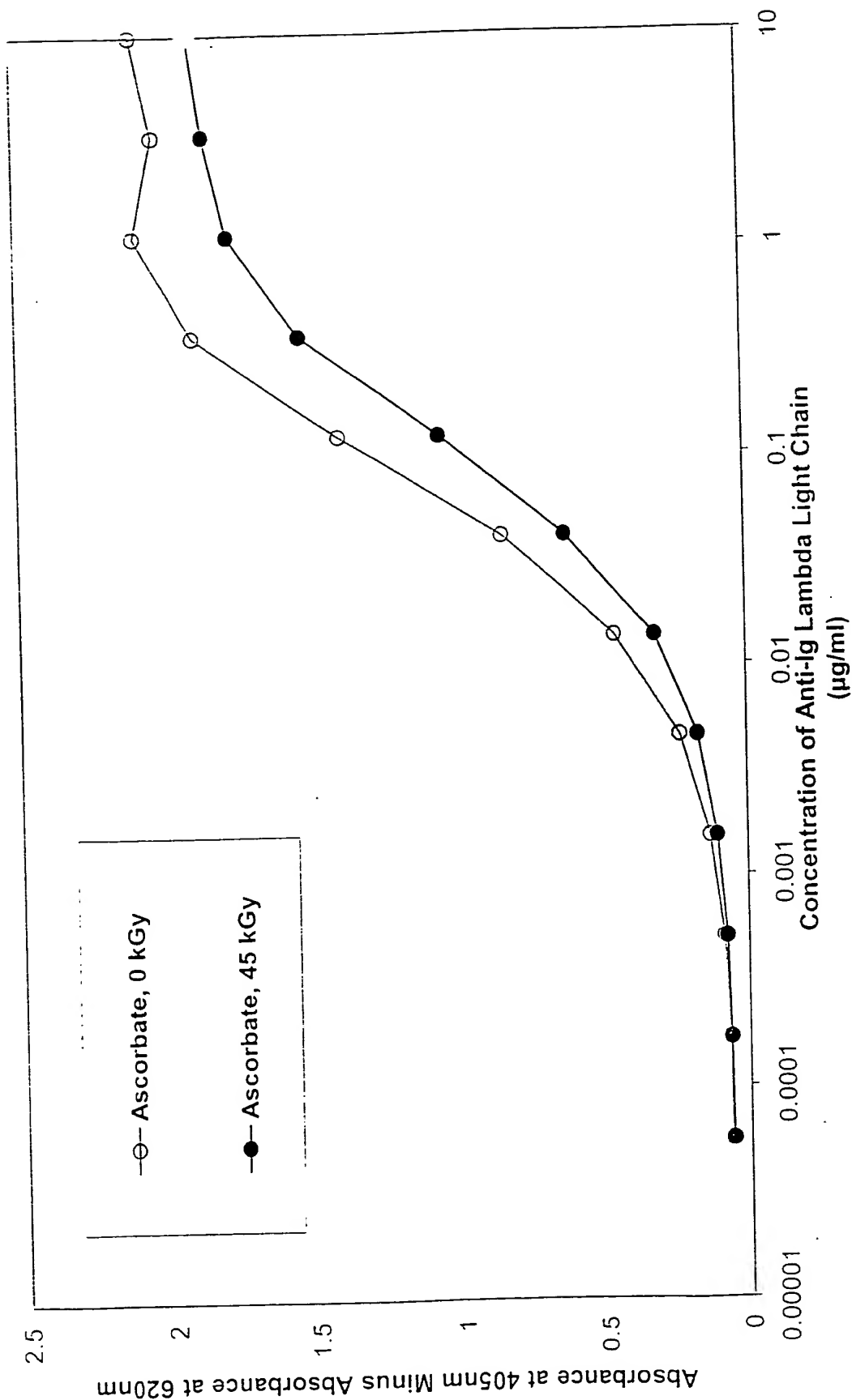


# Gamma Irradiation of Freeze-Dried Anti-Insulin Monoclonal Antibody in the Presence or Absence of 20 mM Gly-Gly (and 1% BSA)



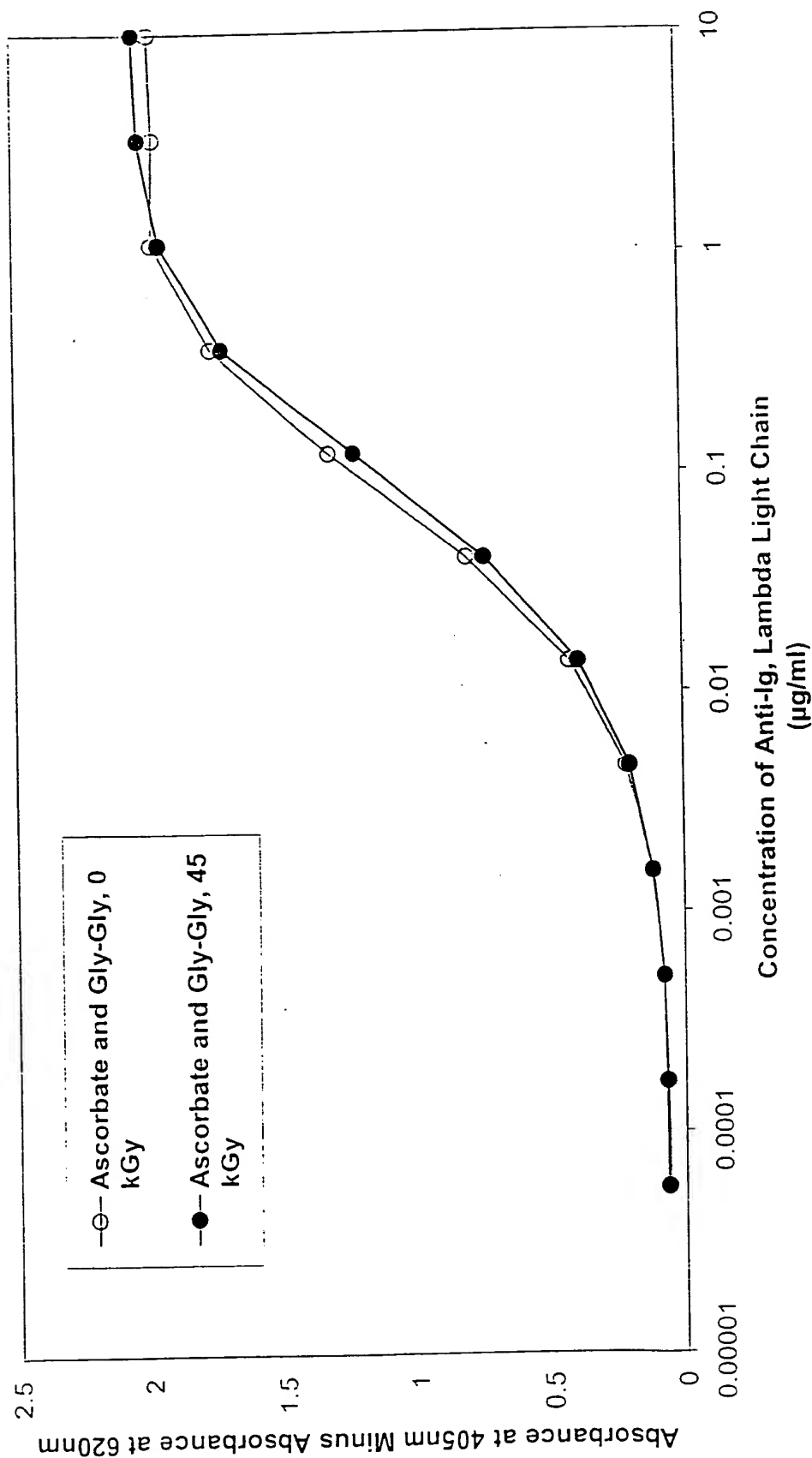


# Gamma Irradiation of Liquid Anti-Human Ig, Lambda Light Chain in the Presence or Absence of 200mM Ascorbate



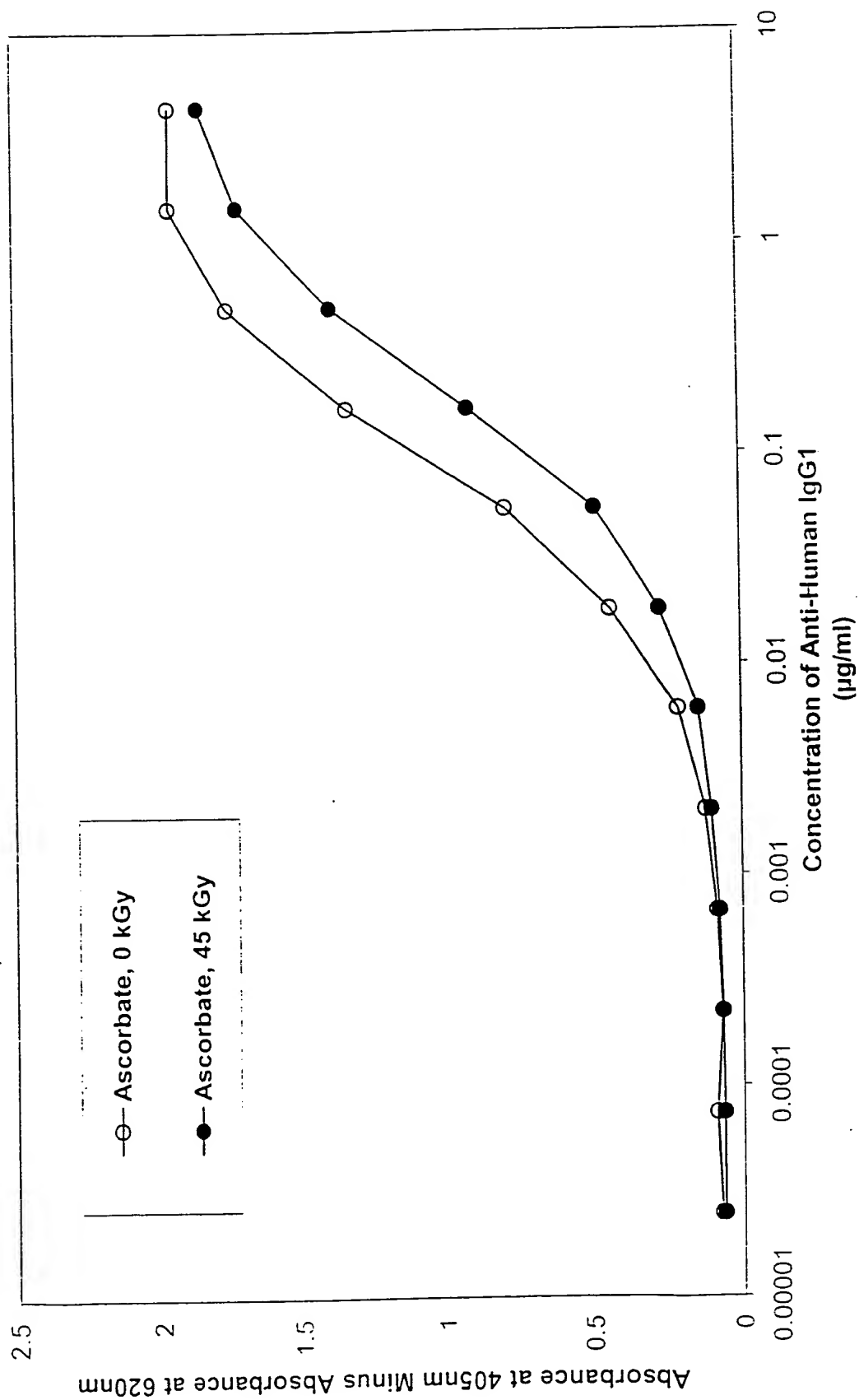


# Gamma Irradiation of Liquid Anti-Human Ig, Lambda Light Chain in the Presence or Absence of 200mM Ascorbate and 200mM Gly-Gly



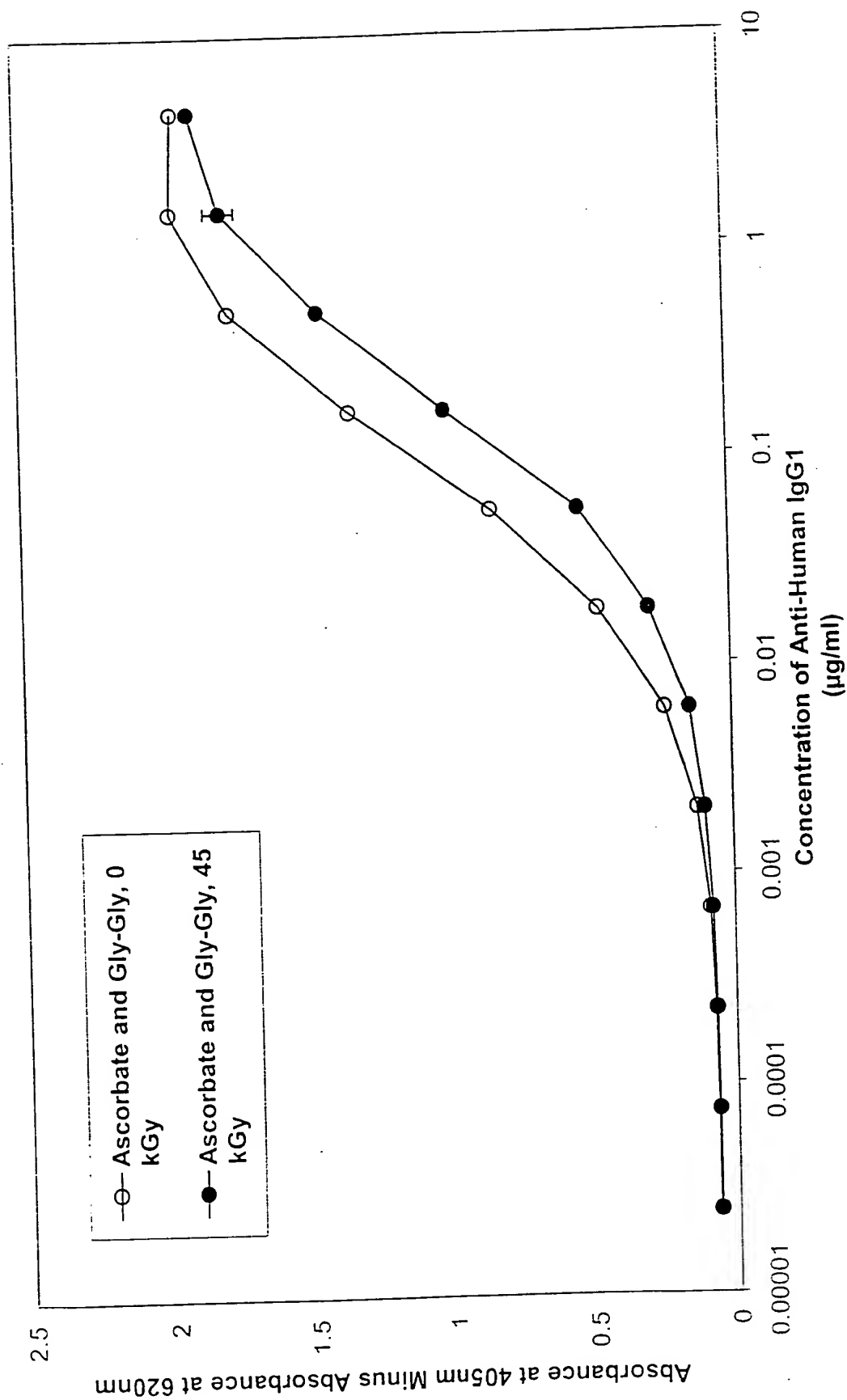


Gamma Irradiation of Liquid Anti-Human IgG1 in the Presence of 200mM Ascorbate



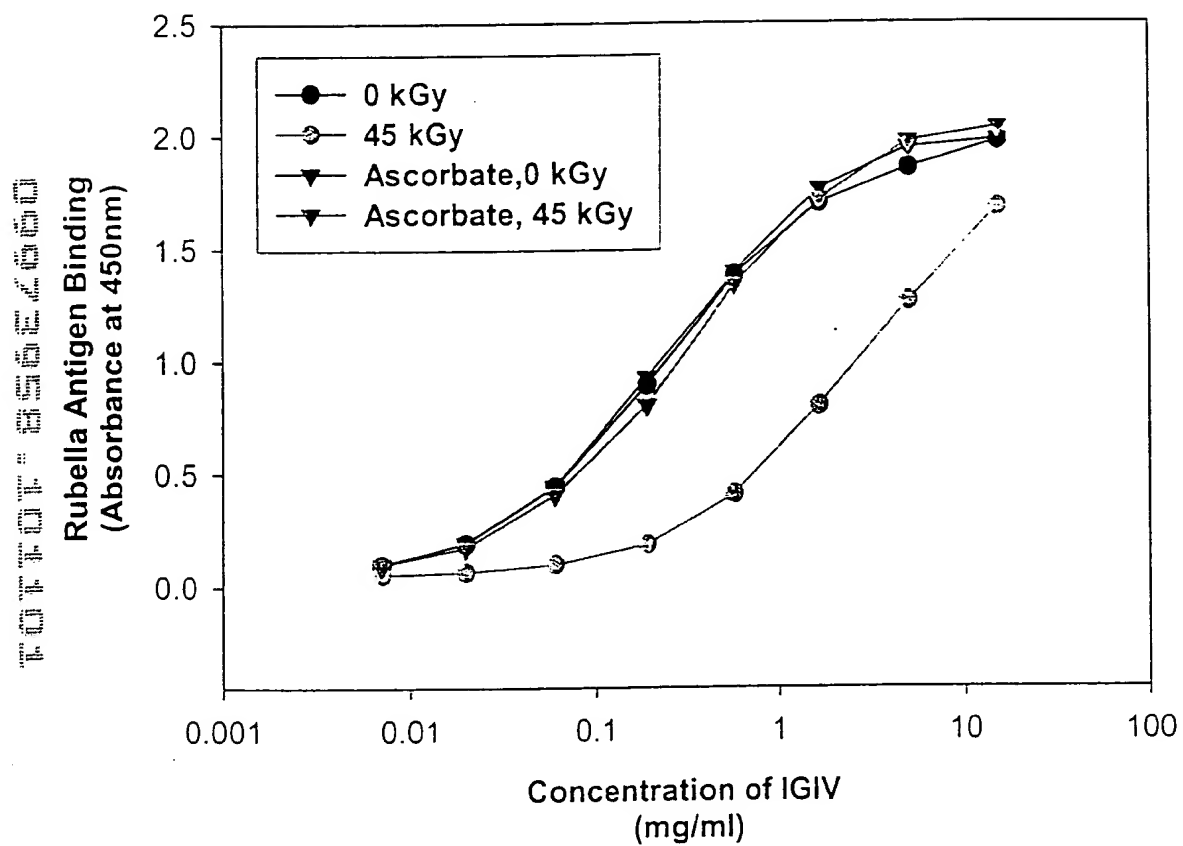


Gamma Irradiation of Liquid Anti-Human IgG1 in the Presence of 200mM Ascorbate and 200mM Gly-Gly





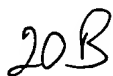
Gamma Irradiation of Liquid  
IGIV in the Presence or Absence of 200 mM Ascorbate  
Using Rubella IgG Assay



20A

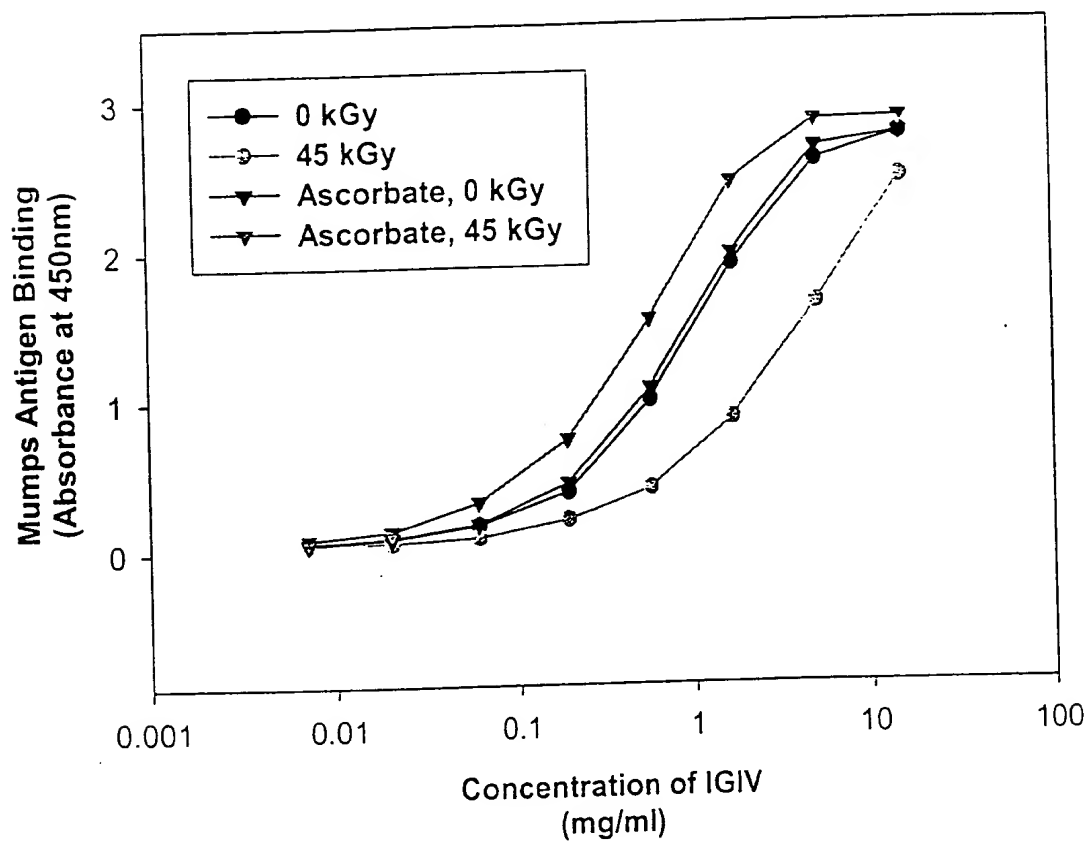


1962 2 25 5 11





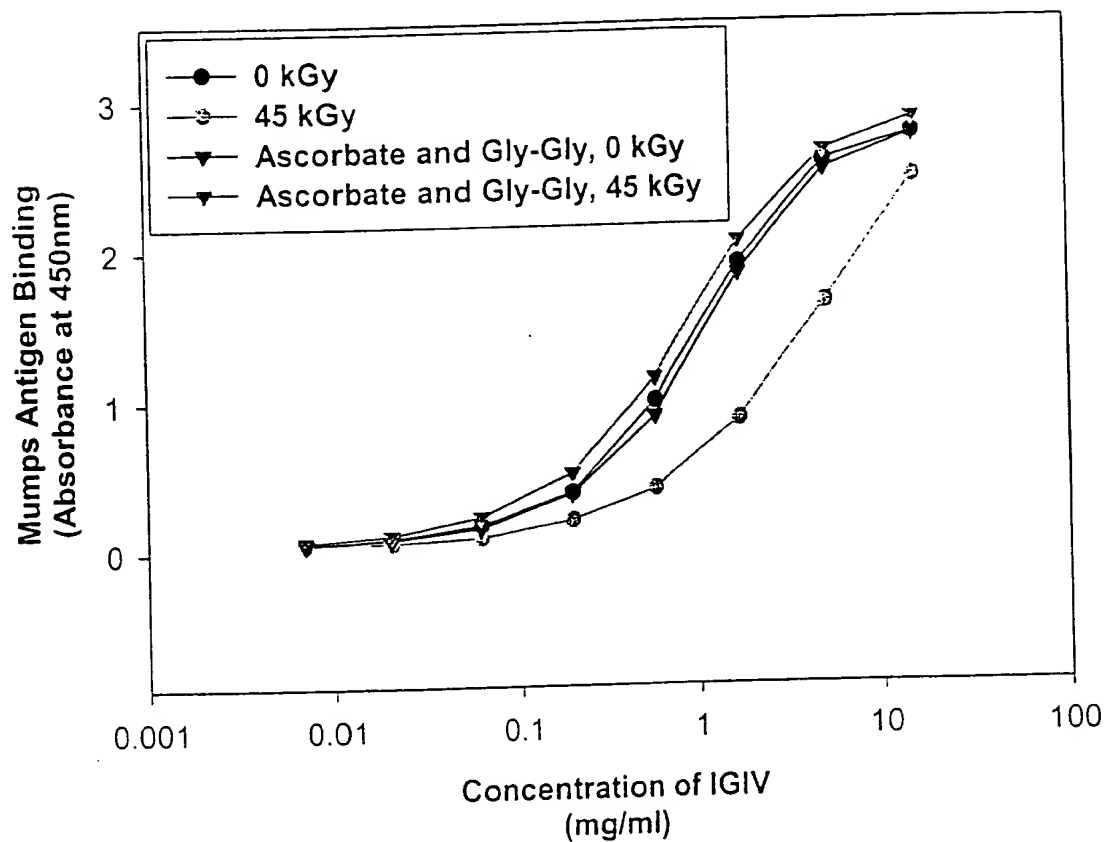
# Gamma Irradiation of Liquid IGIV in the Presence or Absence of 200 mM Ascorbate Using Mumps Assay



20C



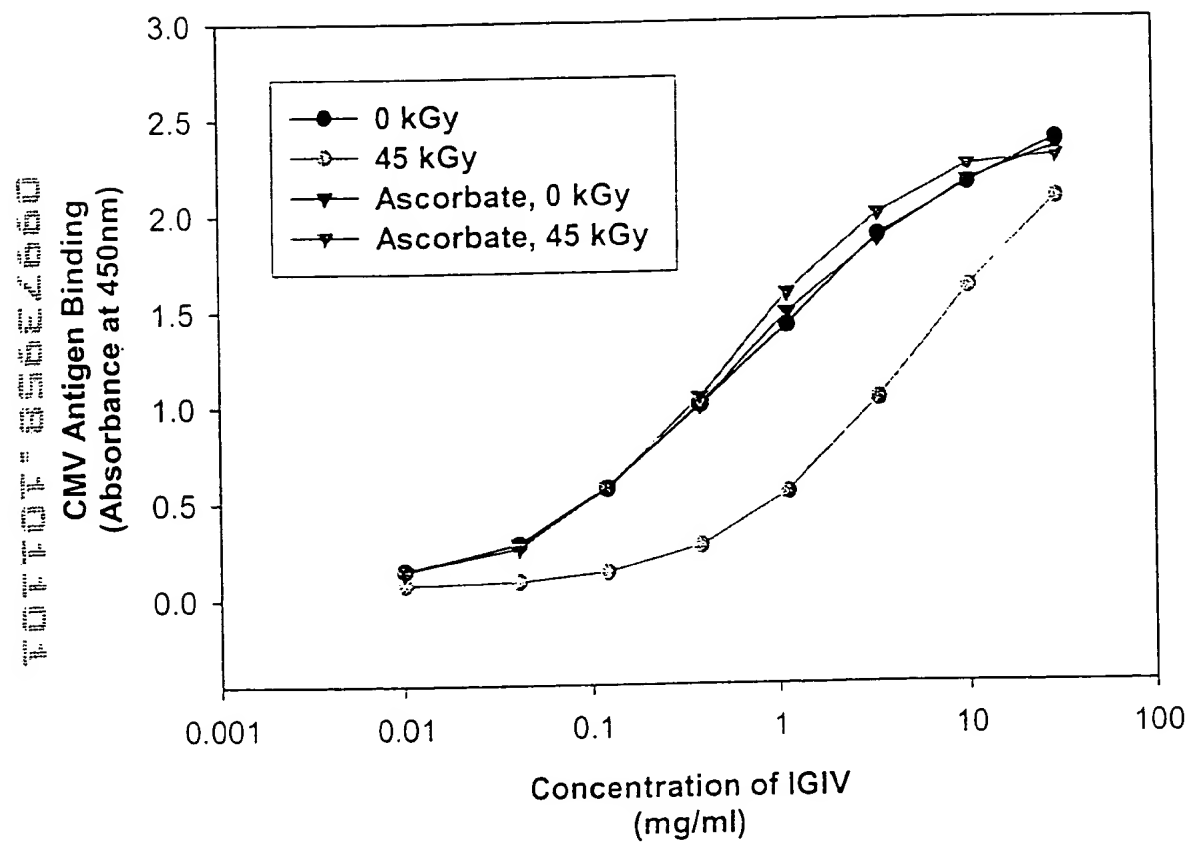
# Gamma Irradiation of Liquid IGIV in the Presence or Absence of 200 mM Ascorbate and 200 mM Gly-Gly Using Mumps Assay



20D



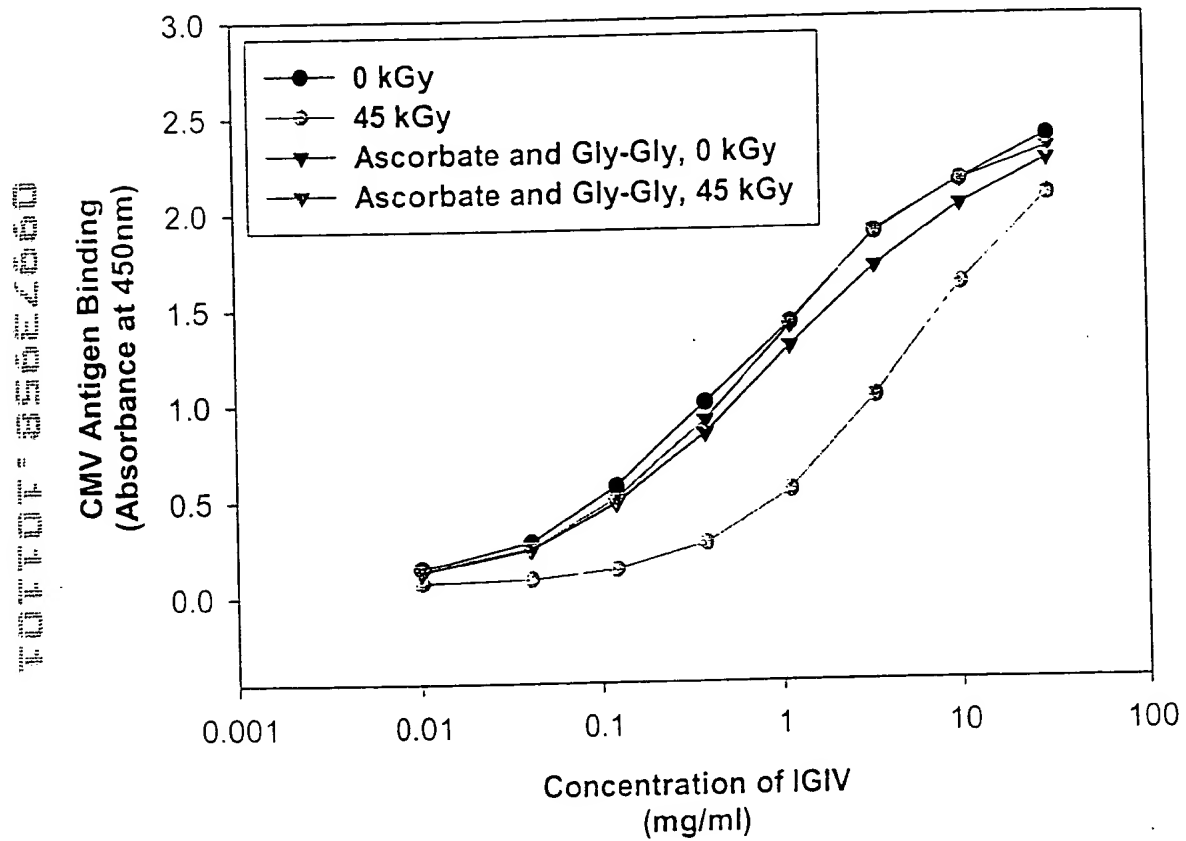
Gamma Irradiation of Liquid  
IGIV in the Presence or Absence of 200 mM Ascorbate  
Using CMV Assay



20E



# Gamma Irradiation of Liquid IGIV in the Presence or Absence of 200 mM Ascorbate and 200 mM Gly-Gly Using CMV Assay



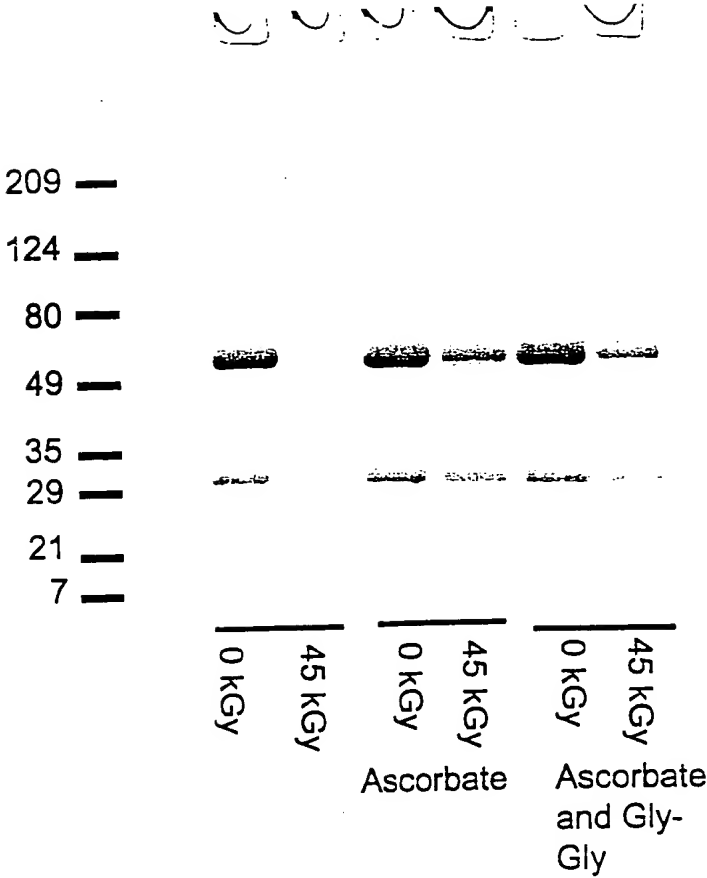
20F



SDS-PAGE of

Liquid IGIV

Liquid IGIV, Reduced 5-15%



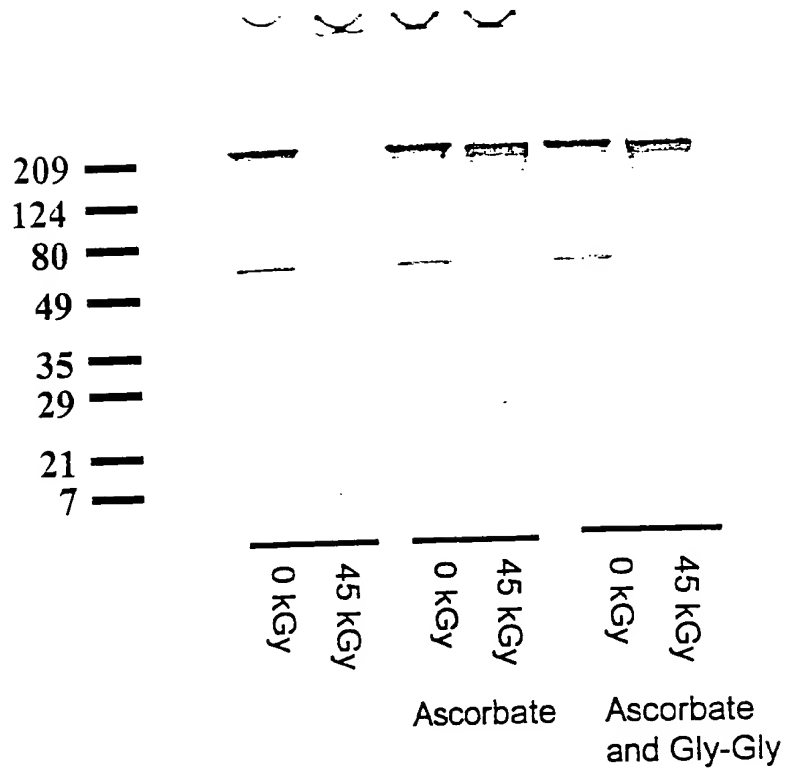
206



# SDS-PAGE of

Liquid IGIV

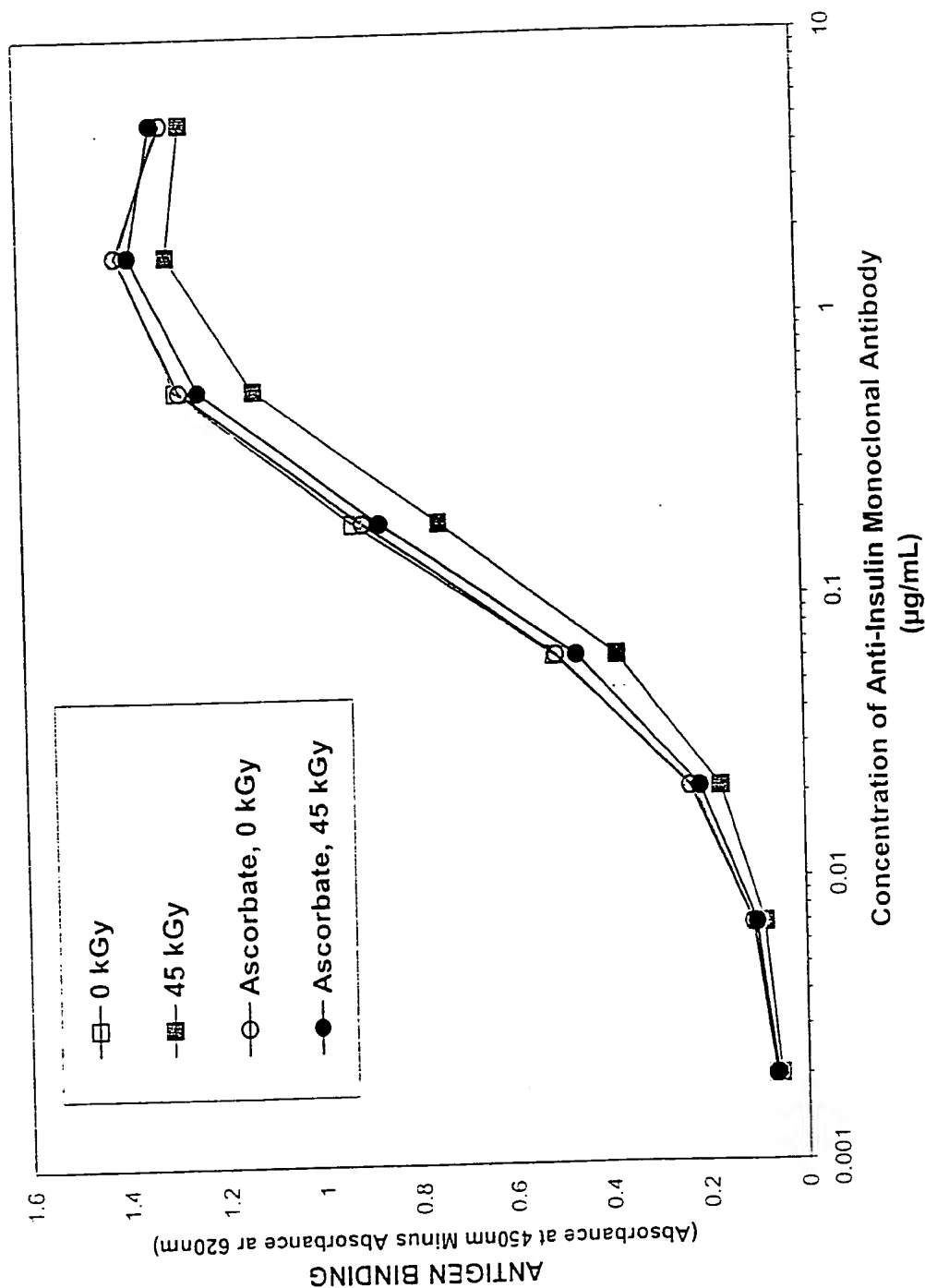
Liquid IGIV, Non-Reduced 5-15%



20H



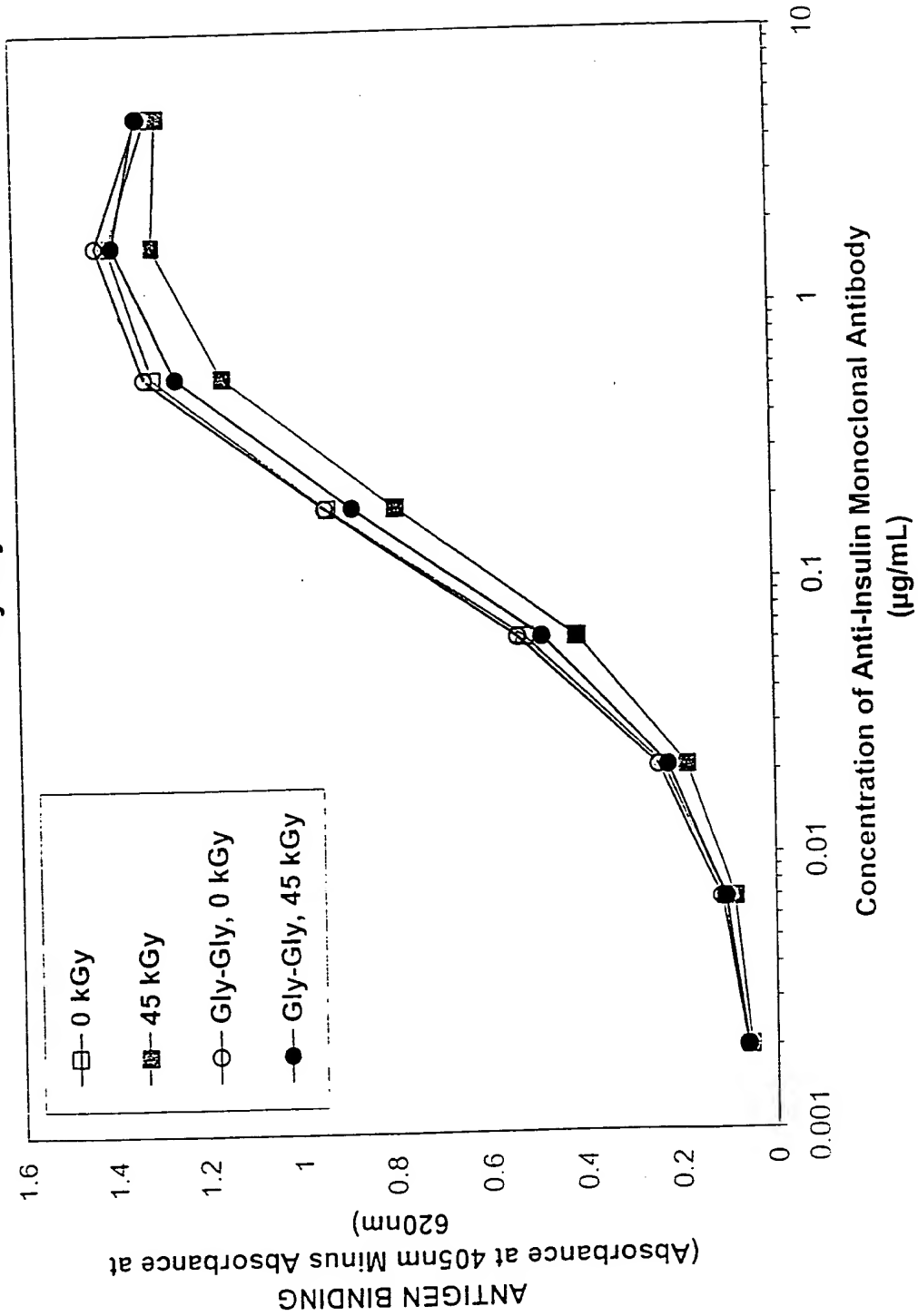
Gamma Irradiation of Freeze-Dried Anti-Insulin Monoclonal Antibody at a High Dose Rate (30 kGy/h) in the Presence or Absence of 20 mM Ascorbate





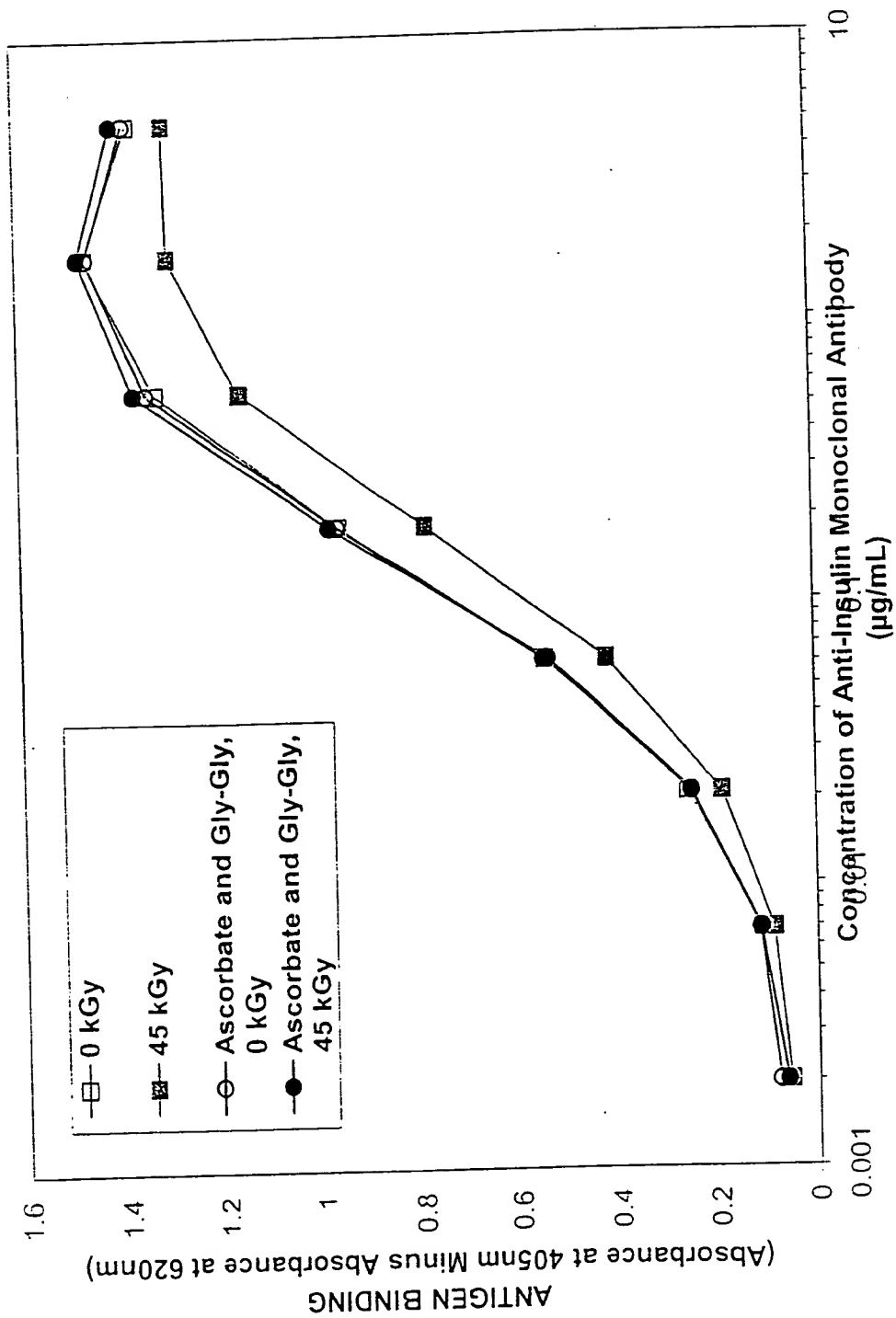
Antibody at a High Dose Rate (30 kGy/h) in the Presence or Absence of 20 mM Gly-Gly

Gamma Irradiation of Freeze-Dried Anti-Insulin Monoclonal





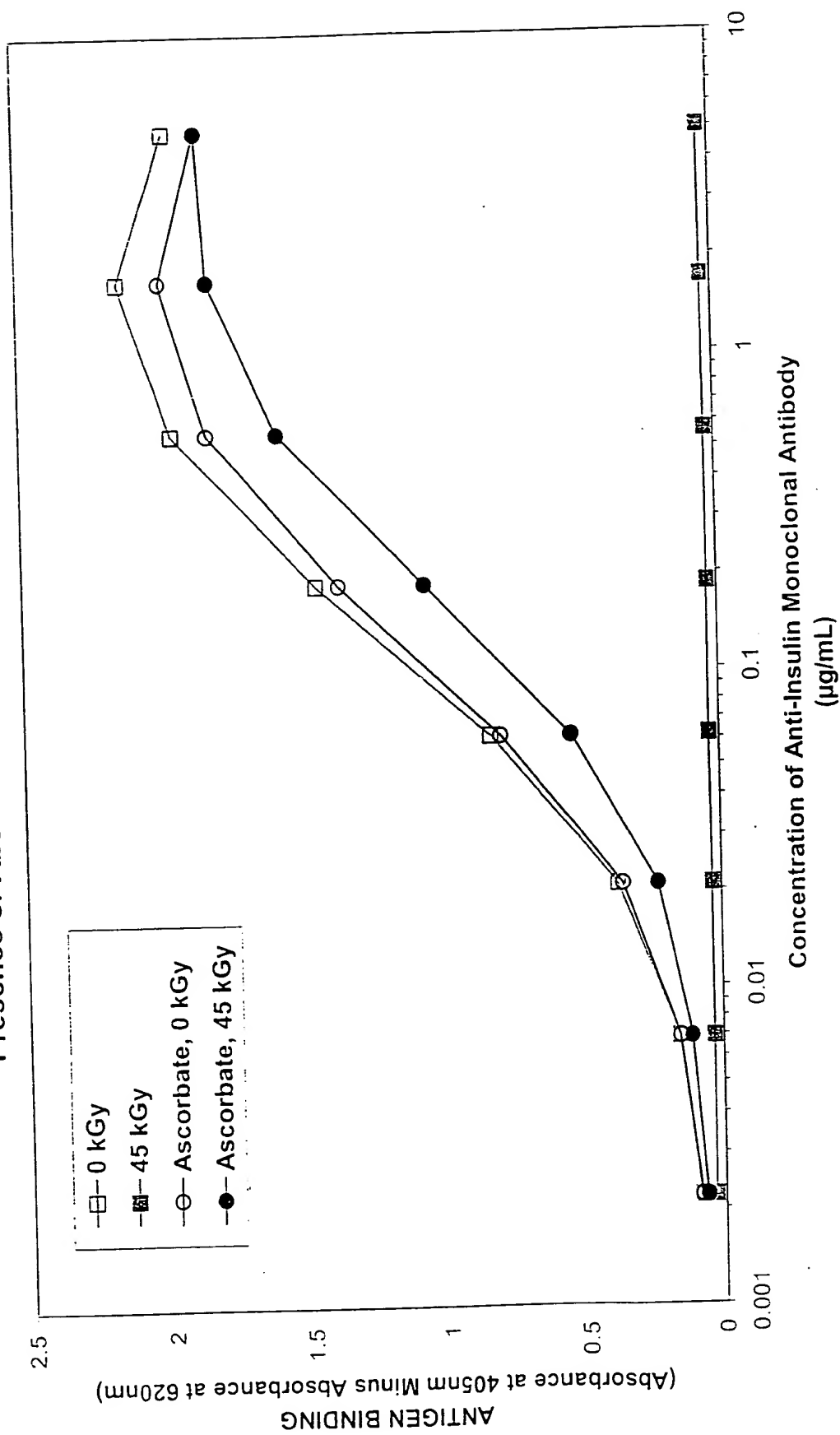
Gamma Irradiation of Freeze-Dried Anti-Insulin Monoclonal Antibody at a High Dose Rate 30 kGy/h in the Presence or Absence of 20 mM Ascorbate and 20 mM Gly-Gly



21C

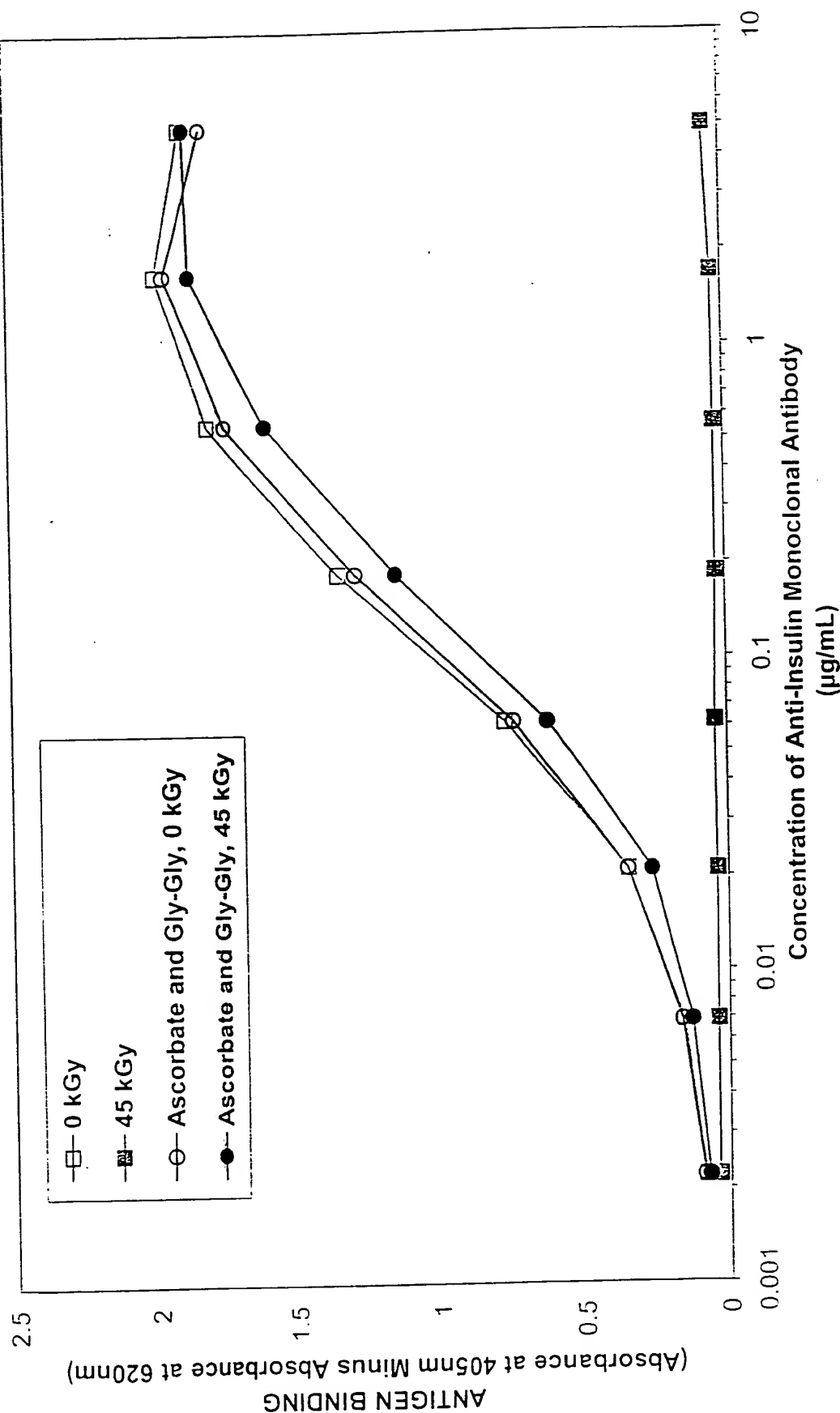


Gamma Irradiation of Anti-Insulin Monoclonal Antibody in the Presence or Absence of 200 mM Ascorbate





# Gamma Irradiation of Anti-Insulin Monoclonal Antibody in the Presence or Absence of 200 mM Ascorbate and 200 mM Gly-Gly



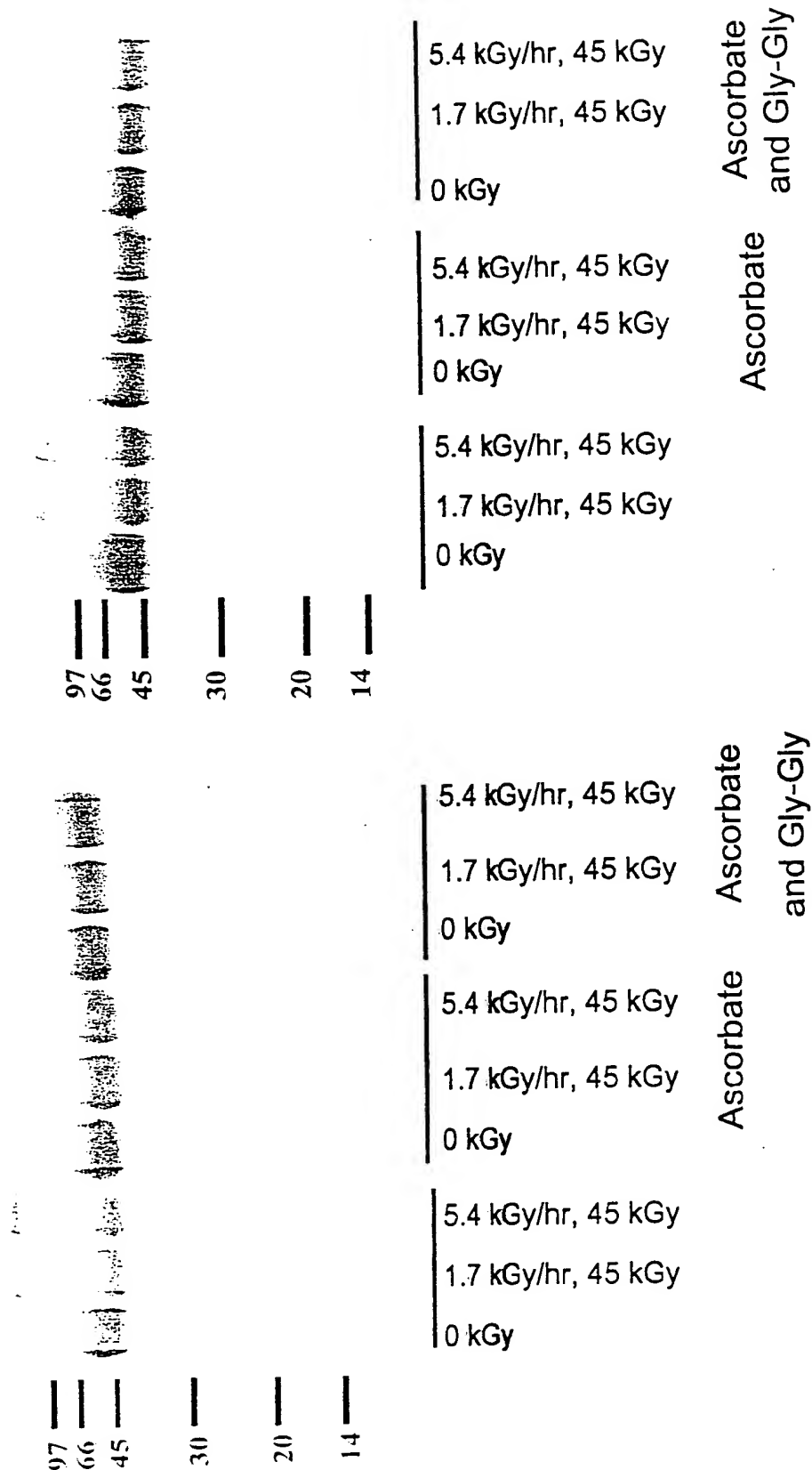
22B



SDS-PAGE for a Glycosidase

Nonreduced

Reduced

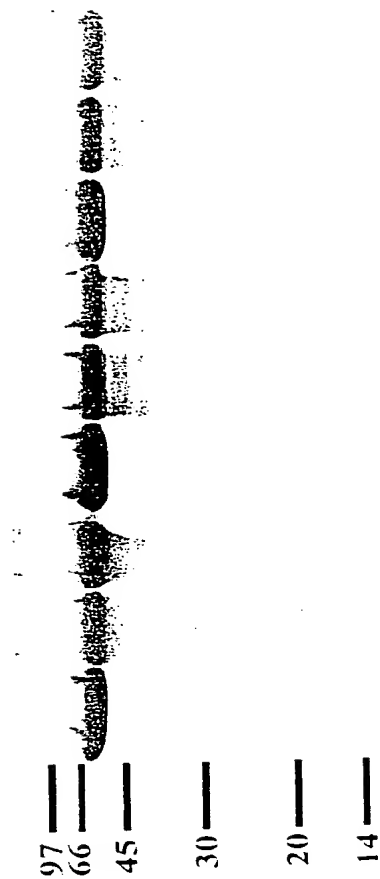


23A



# SDS-PAGE for a Sulfatase

# Reduced

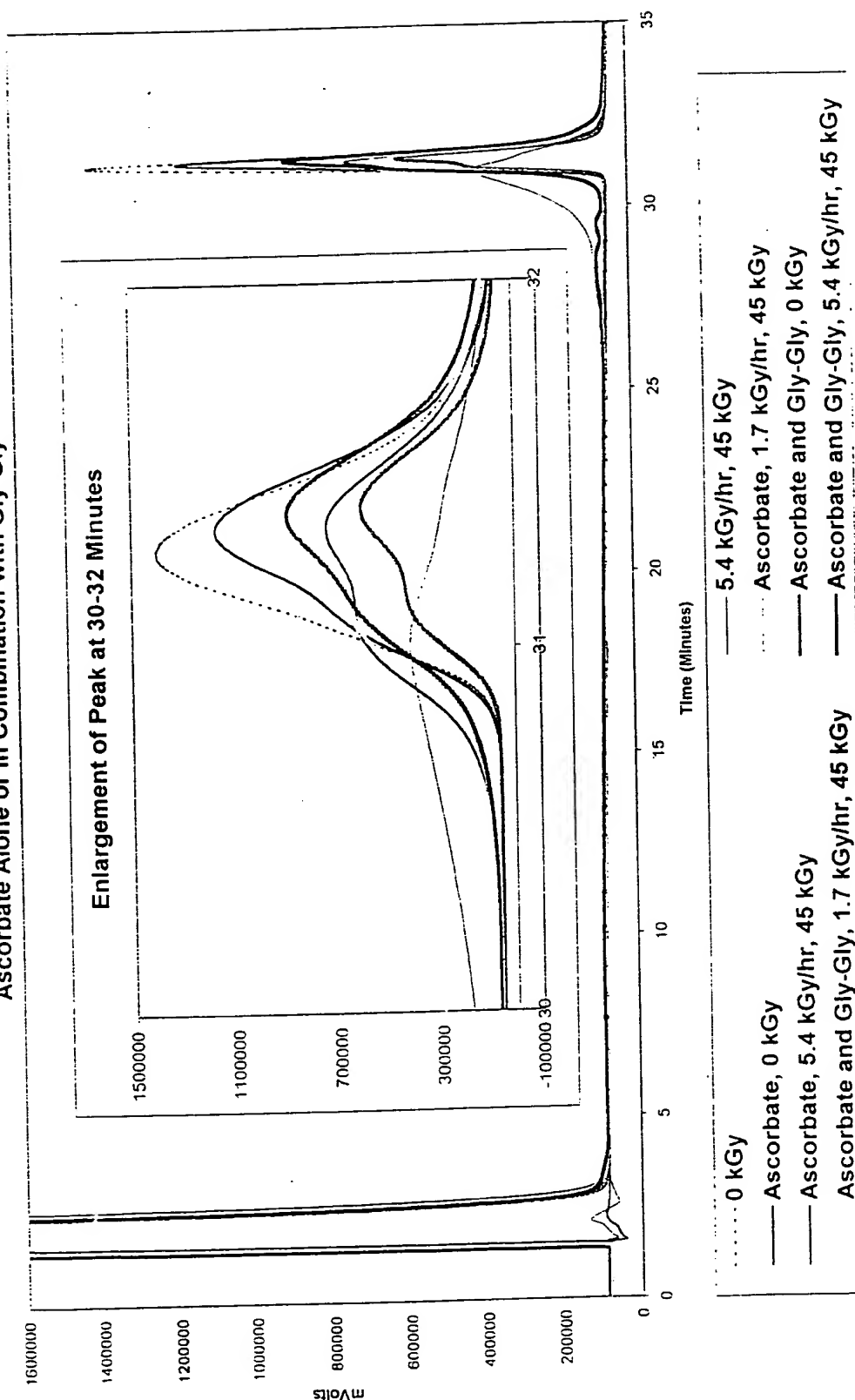


5.4 kGy/hr, 45 kGy	Ascorbate and Gly-Gly
1.7 kGy/hr, 445 kGy	
0 kGy	
5.4 kGy/hr, 45 kGy	Ascorbate
1.7 kGy/hr, 45 kGy	
0 kGy	
5.4 kGy/hr, 45 kGy	
1.7 kGy/hr, 45 kGy	
0 kGy	

23B

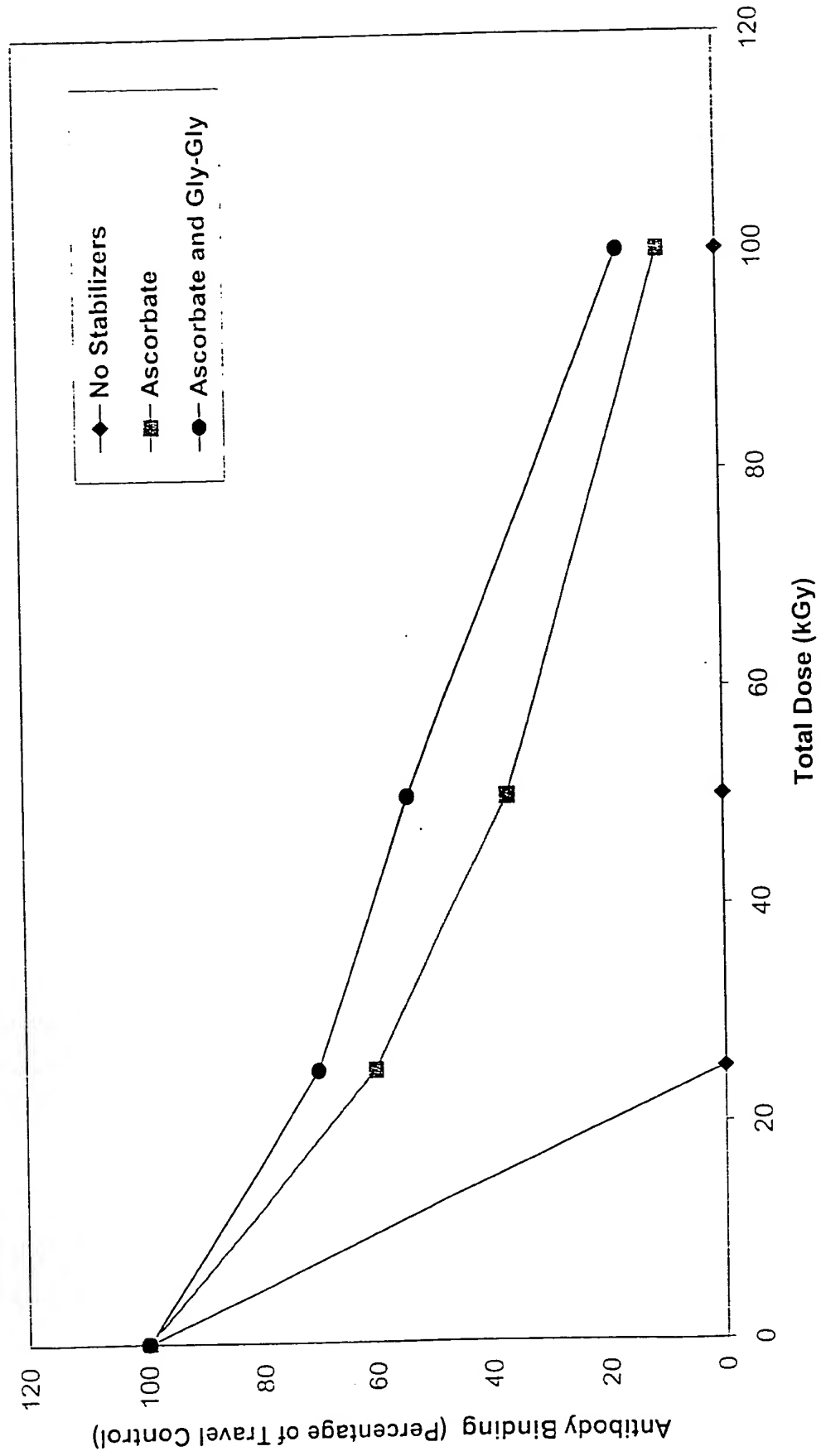


# Gamma Irradiation of a Glycosidase In the Presence or Absence of Ascorbate Alone or In Combination with Gly-Gly



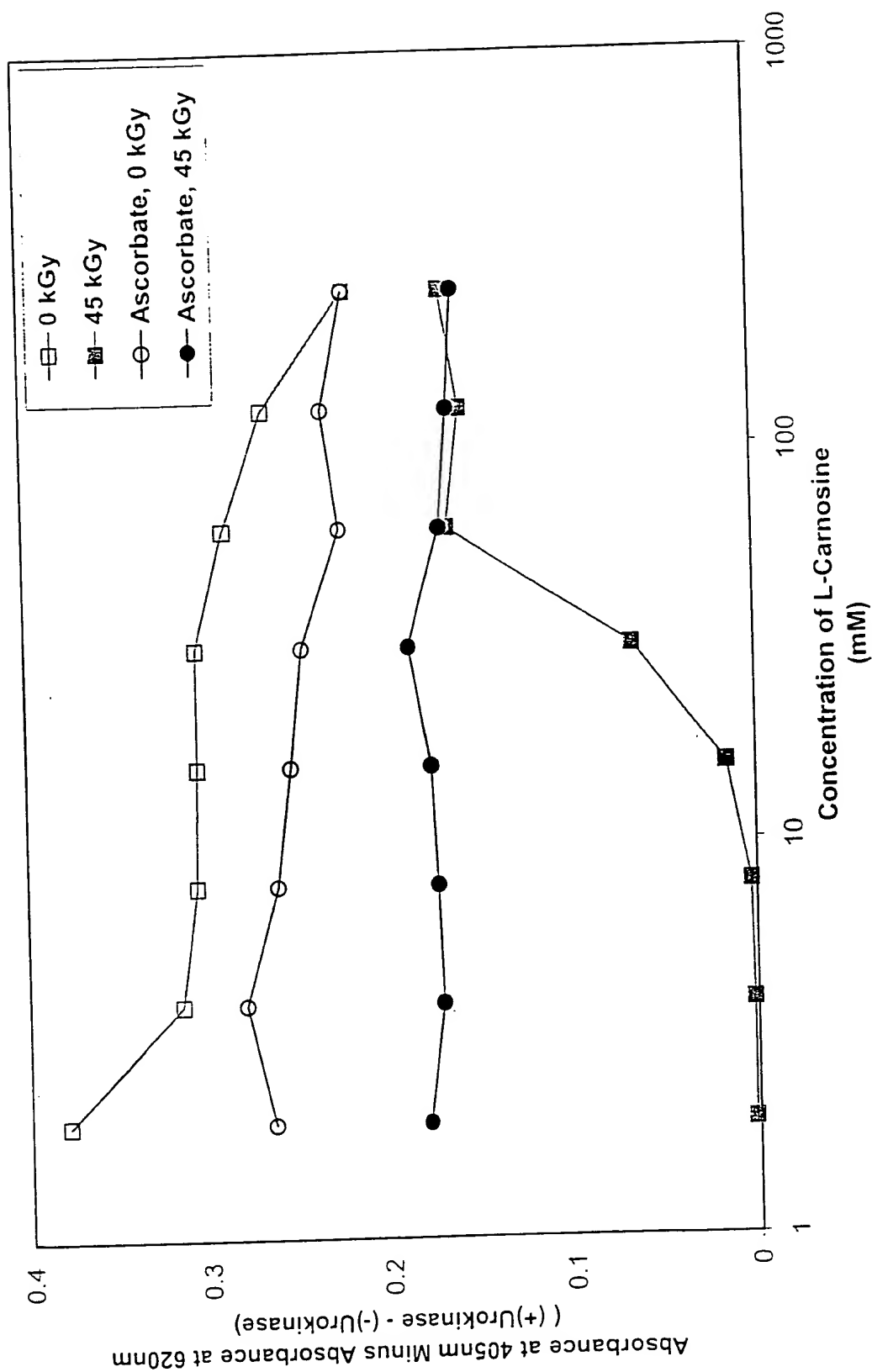


Gamma Irradiation of Liquid Anti-Insulin Monoclonal Antibody in the Presence or Absence of 200 mM Ascorbate Alone or in Combination With 200 mM Gly-Gly





Gamma Irradiation of Liquid Urokinase, With L-Carnosine, at 45 kGy in the Presence or Absence of 50mM Ascorbate

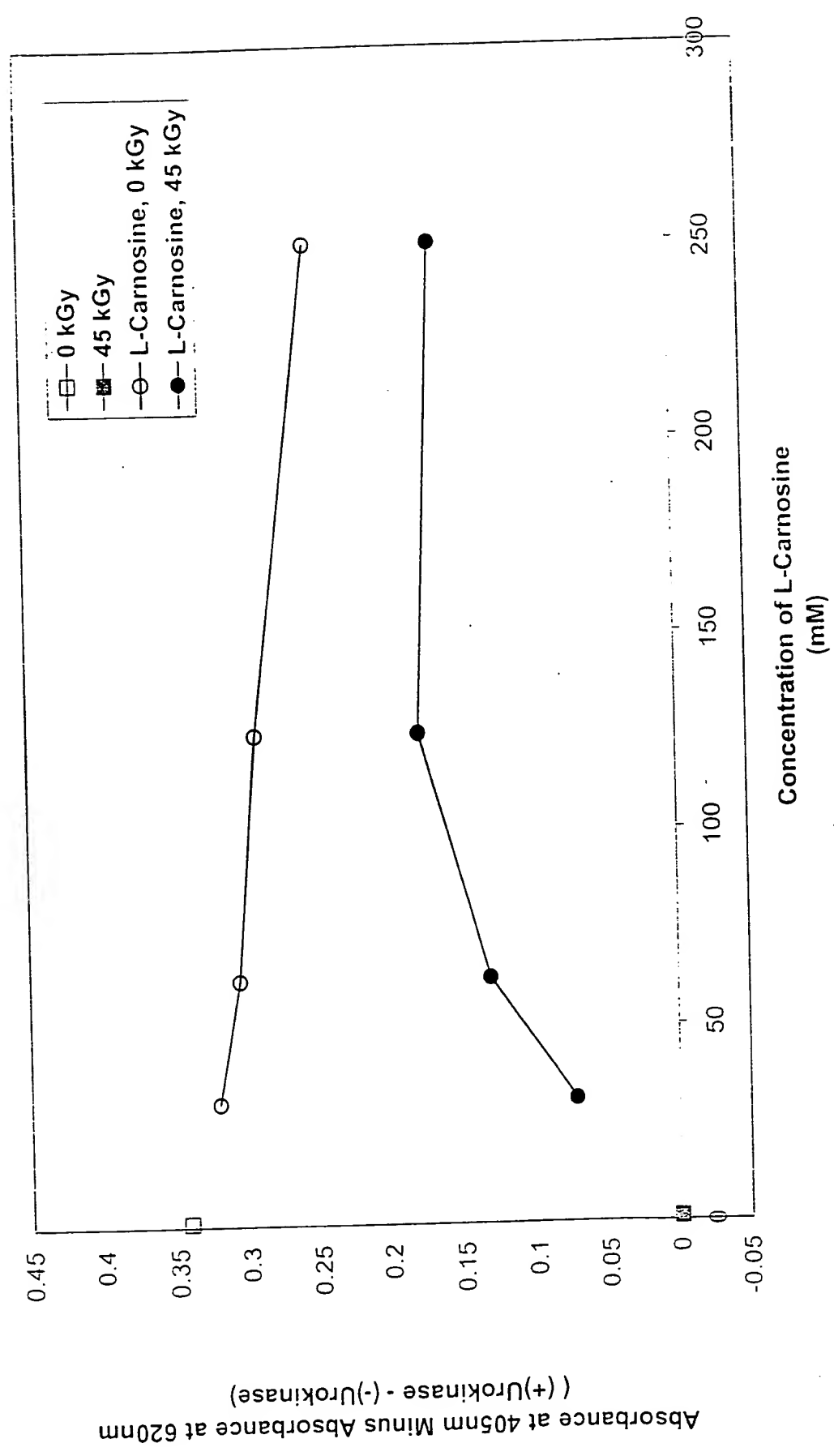






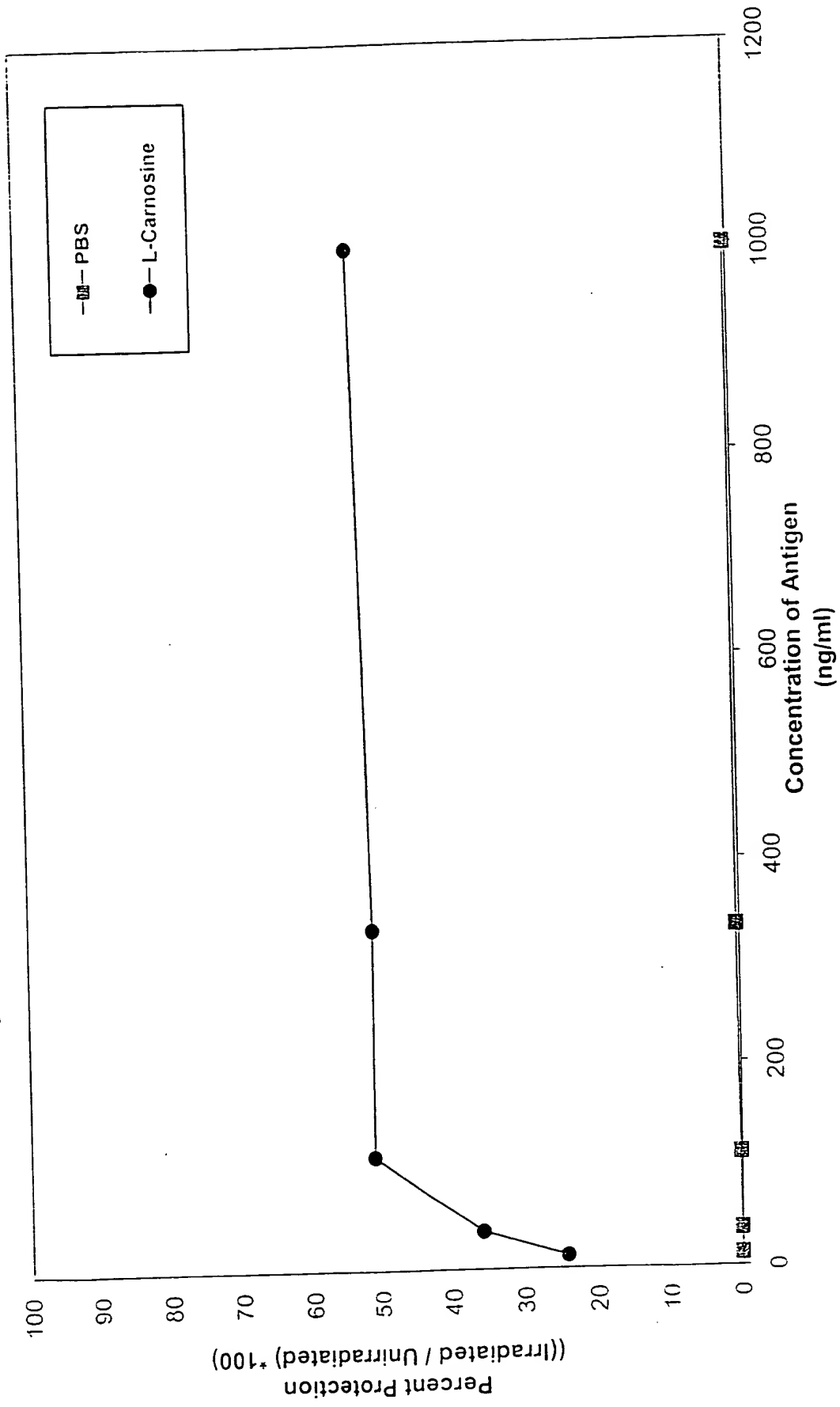


Gamma Irradiation of Liquid Urokinase in the Presence or Absence of L-Carnosine



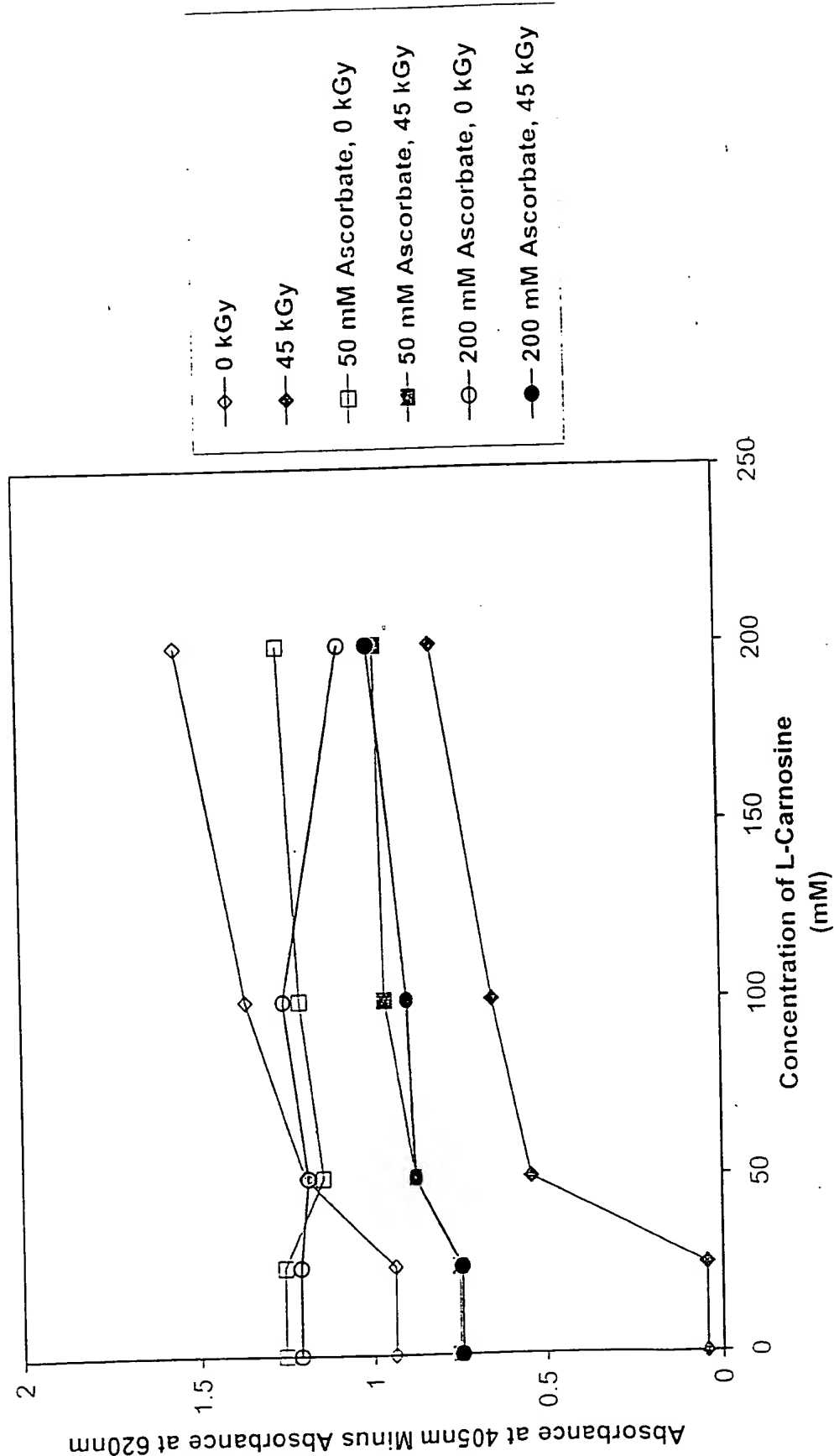


Gamma Irradiation of Immobilized Anti-Insulin Monoclonal Antibody, to 45 kGy, in the Presence or Absence of 100 mM L-Carnosine



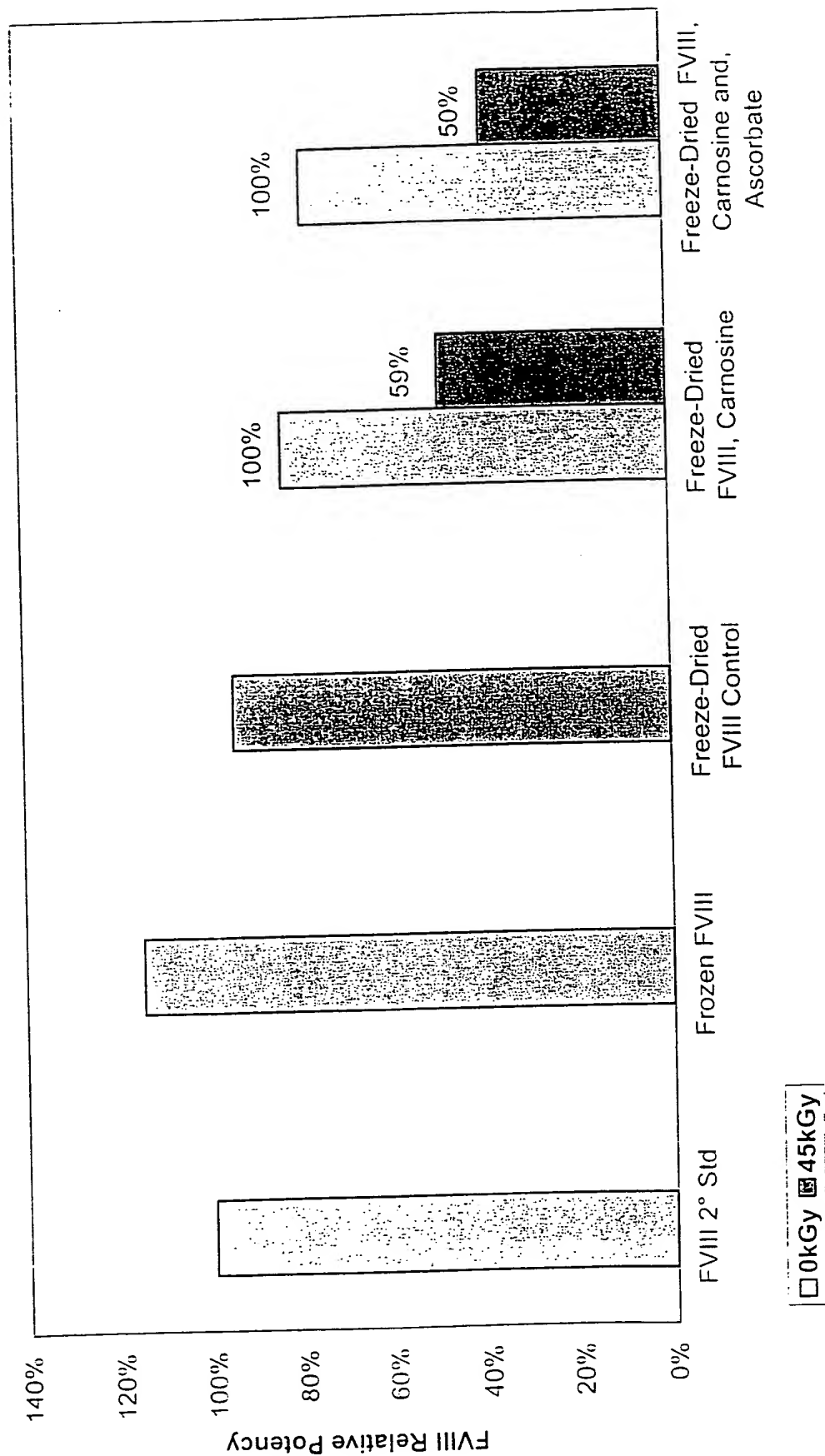


Gamma Irradiation of Immobilized Monoclonal Antibody in the Presence or  
Absence of L-Carnosine and Ascorbate





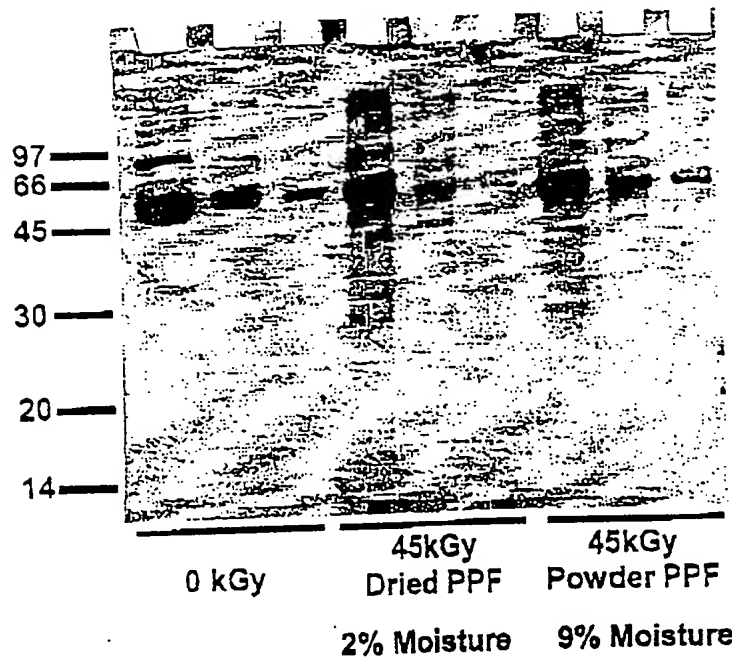
# Gamma Irradiation of Freeze-Dried FVIII in the Presence or Absence of L-Carnosine Alone or in Combination with Ascorbate



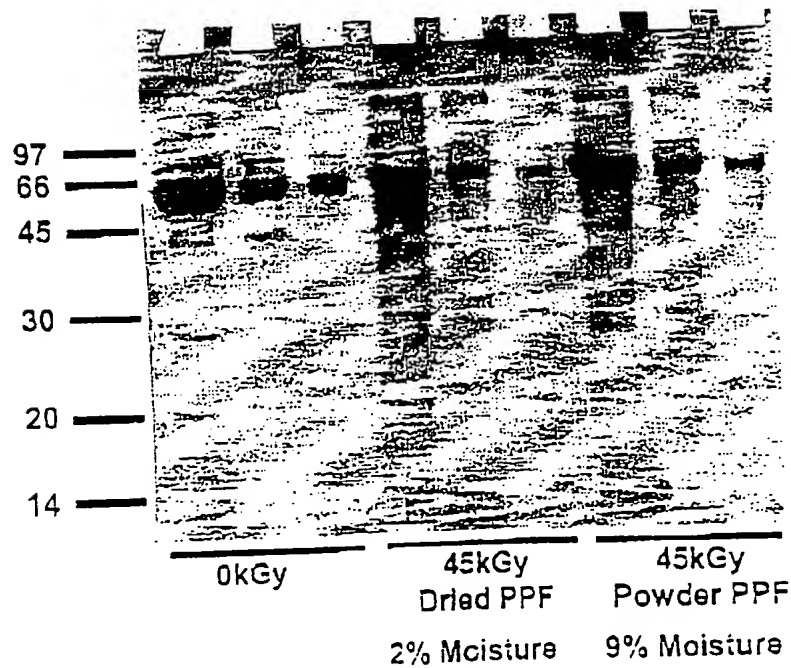


# Gamma Irradiation of Dried and Powder PPF

Nonreduced, 12.5 %

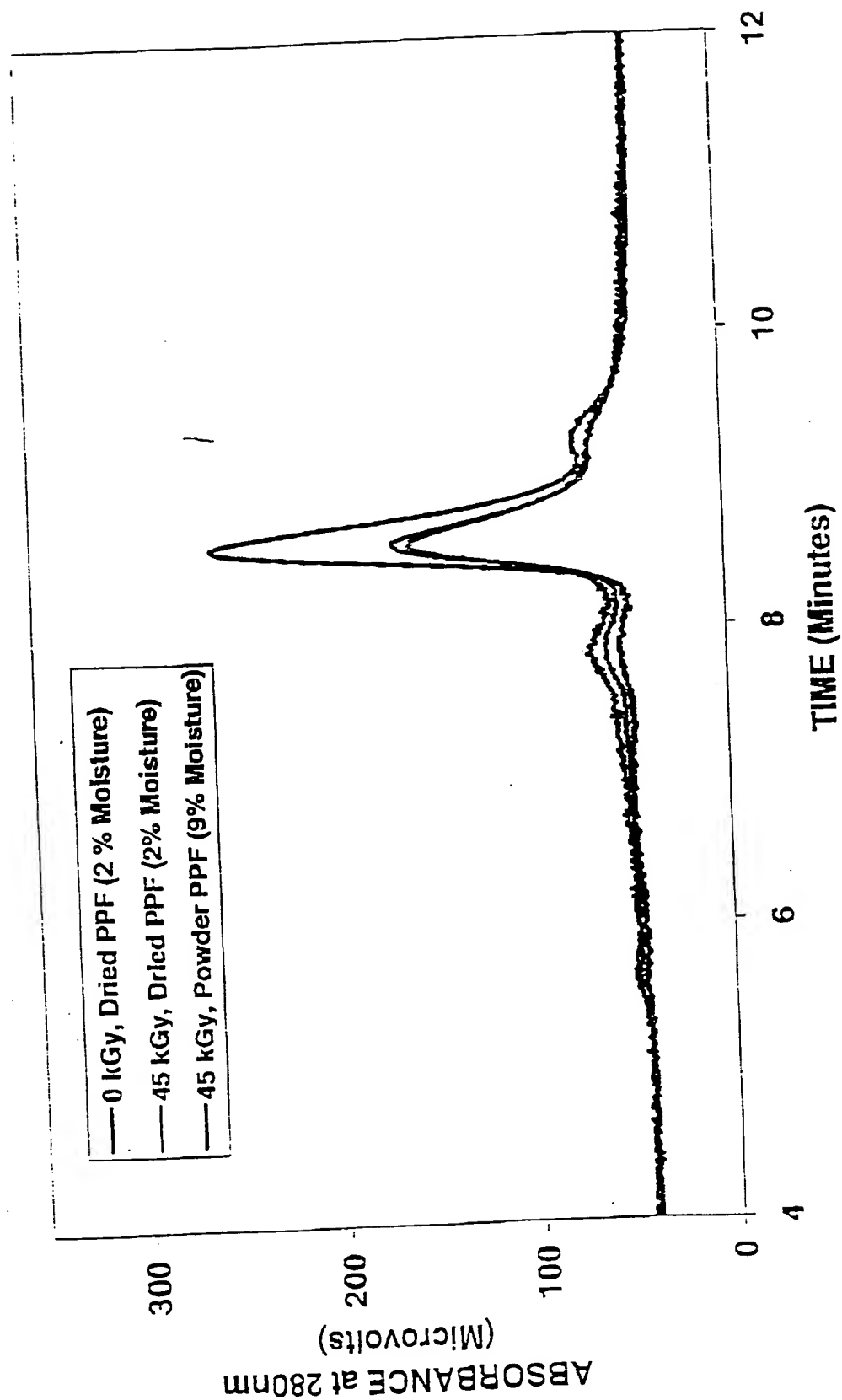


Reduced, 12.5%





# Gamma Irradiation of Dried and Powder PPF

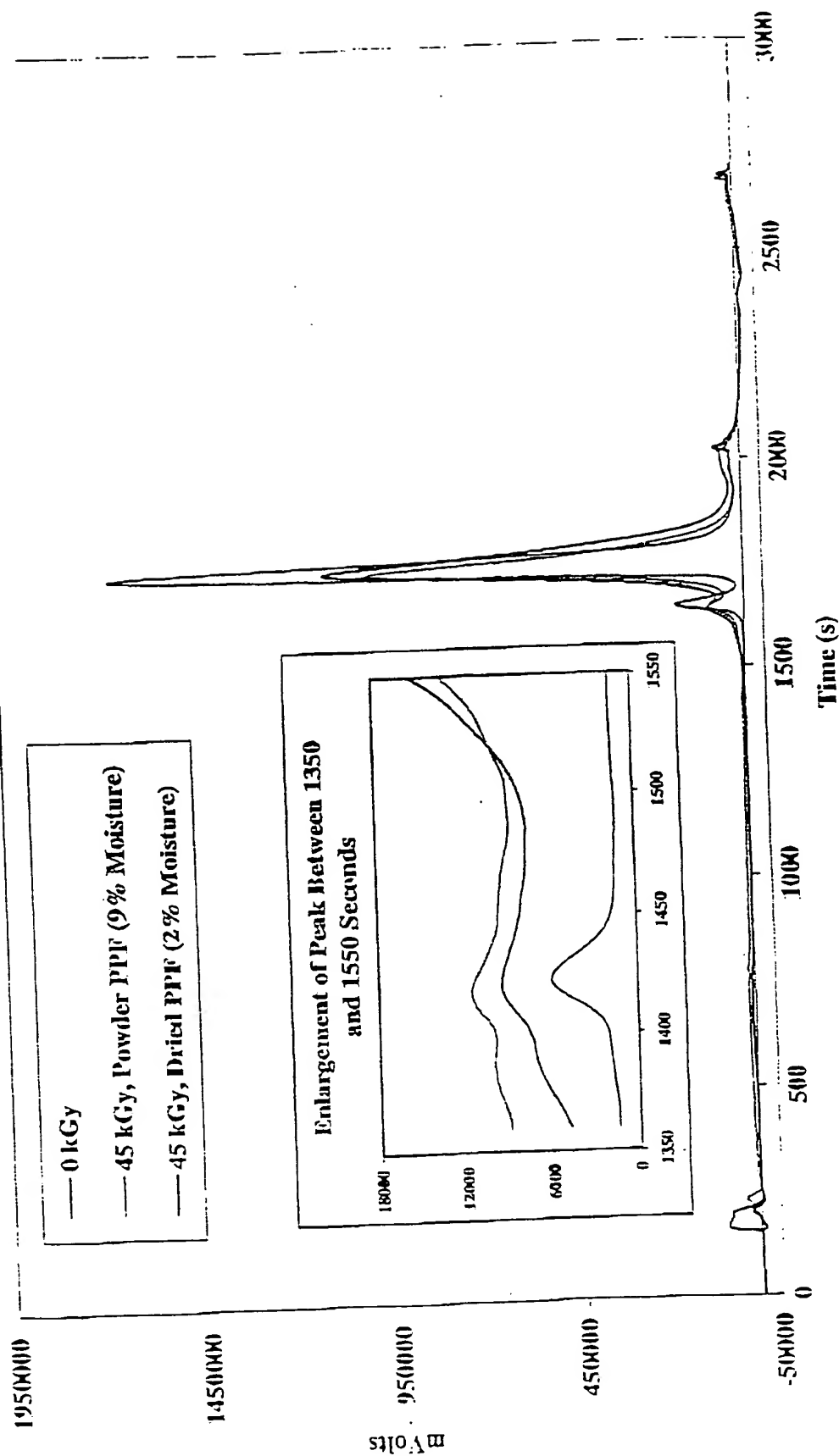


32B



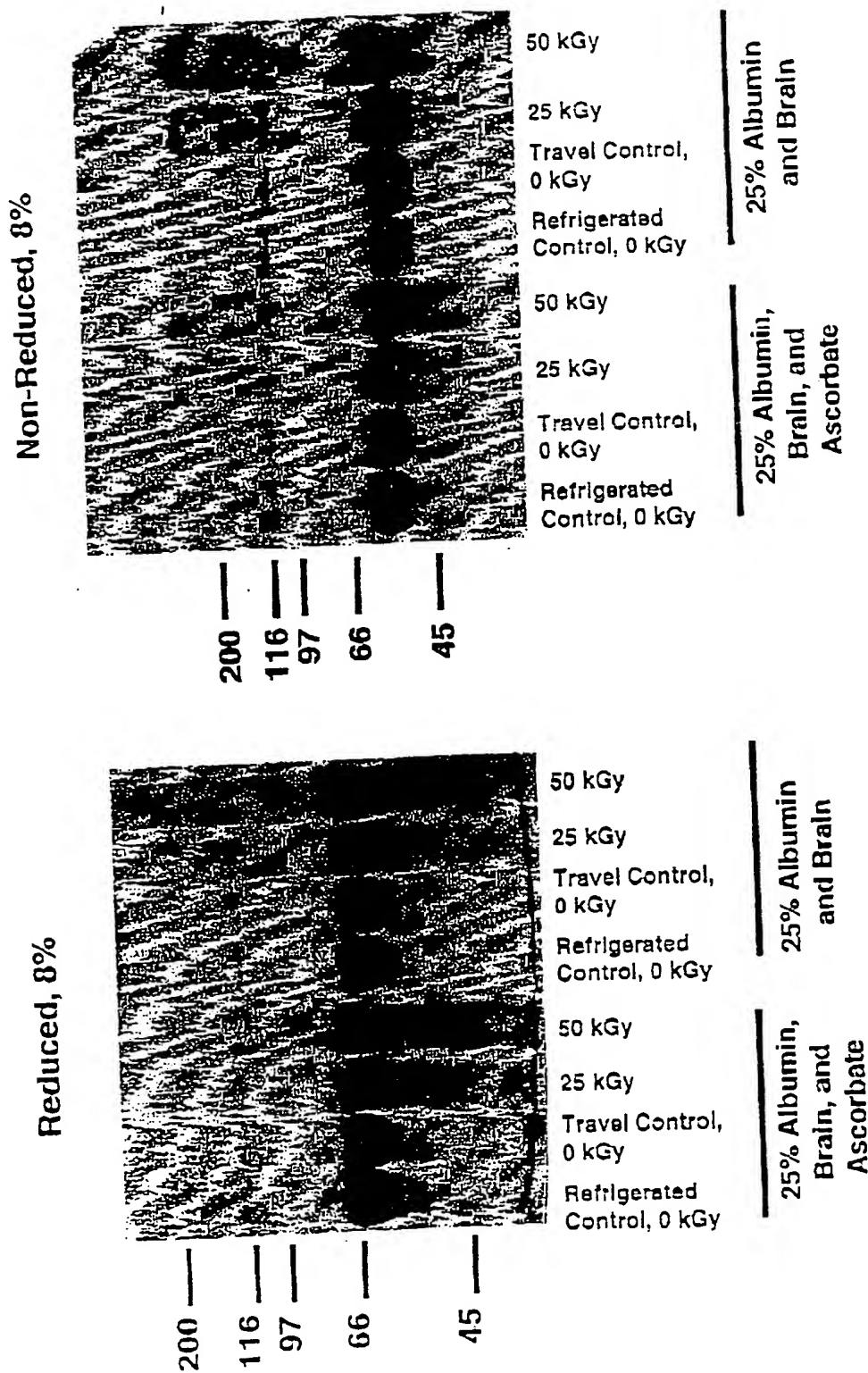
# Gamma Irradiation of Dried and

## Powder PPF



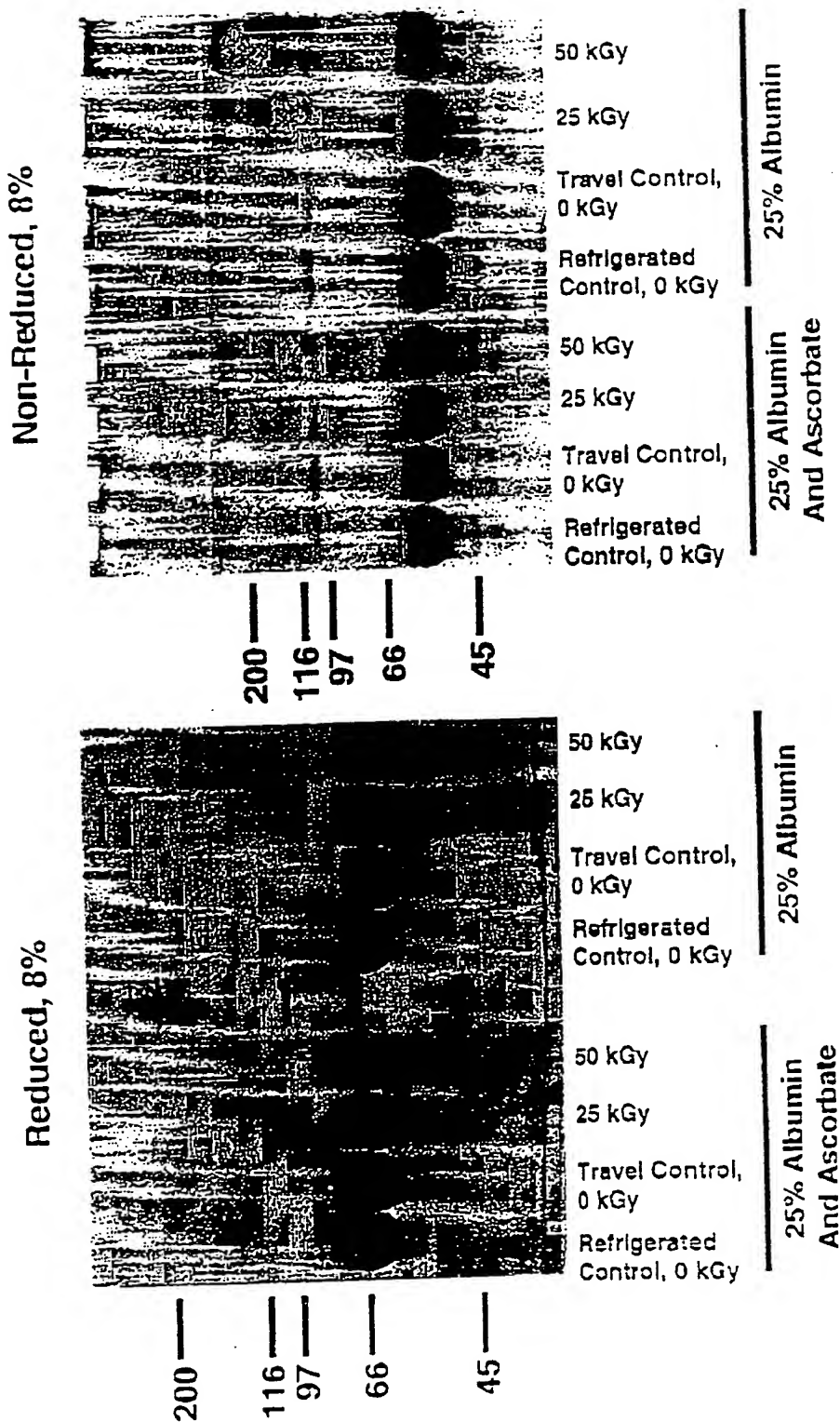


# Gamma Irradiation (to 25 and 50 kGy) of 25% Albumin in the Presence of Brain Alone or in Combination with 200 mM Ascorbate





# Gamma Irradiation (to 25 and 50 kGy) of 25% Albumin in the Presence or Absence of 200 mM Ascorbate



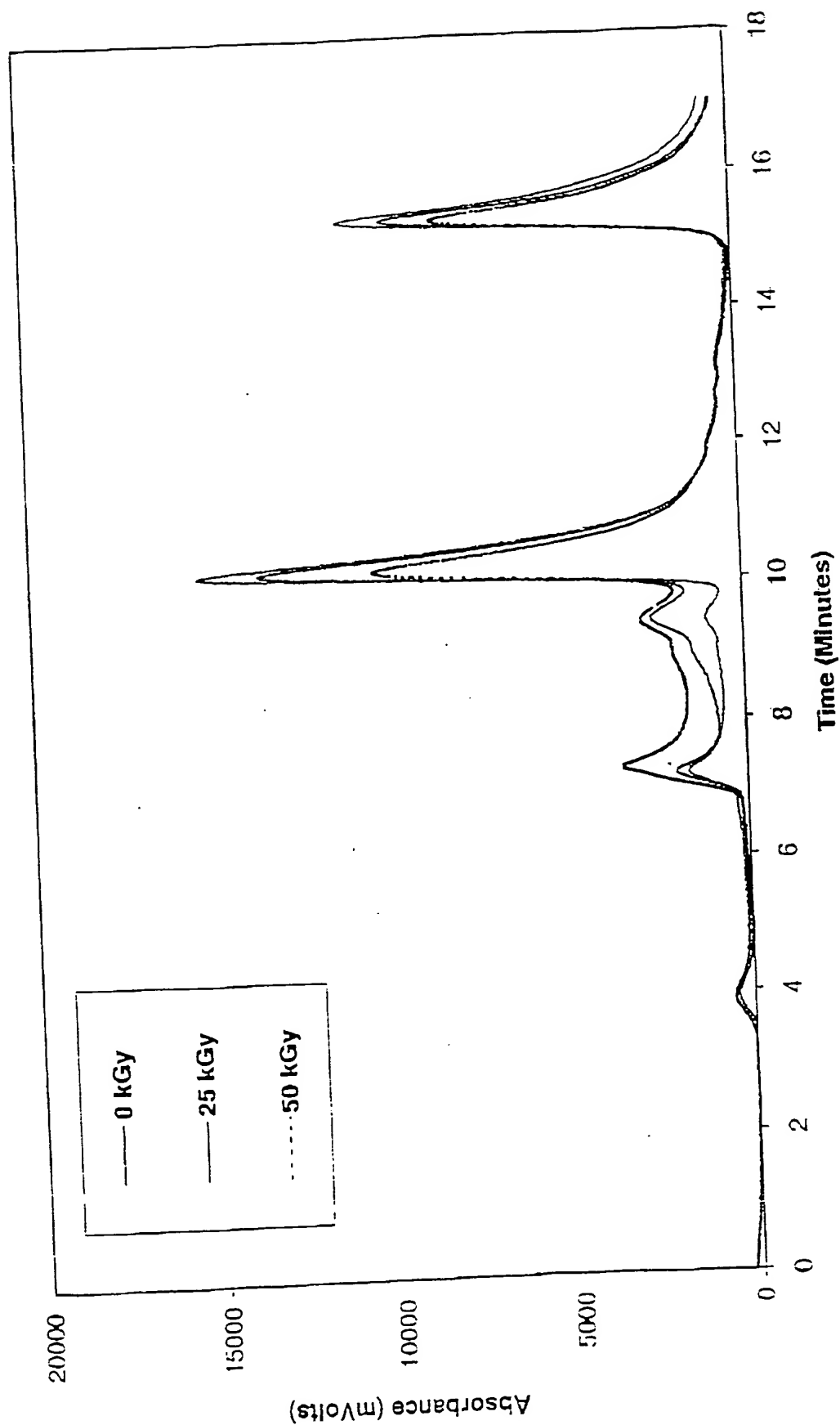
33B





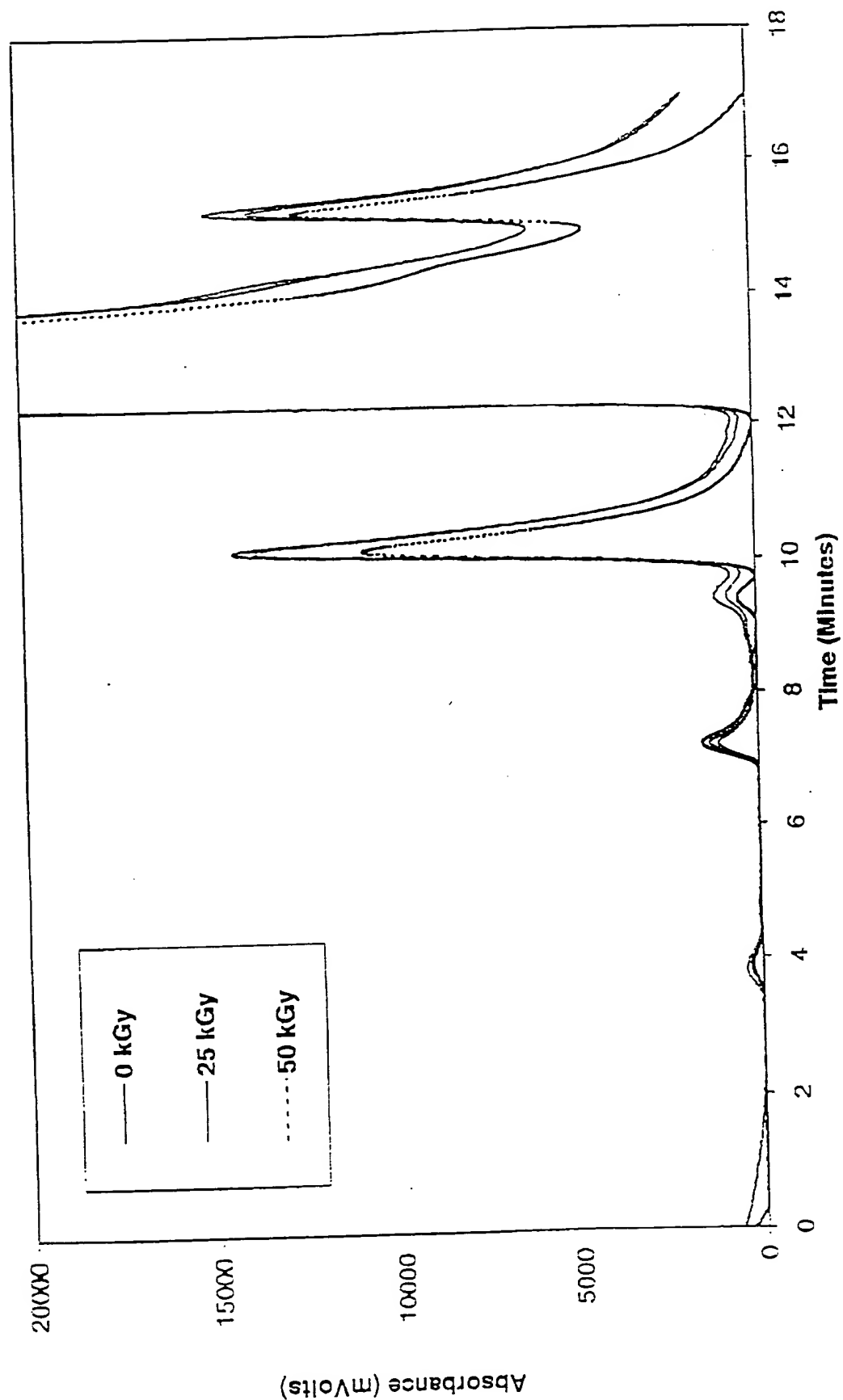


# Gamma Irradiation of 25% Albumin in the Presence of Brain





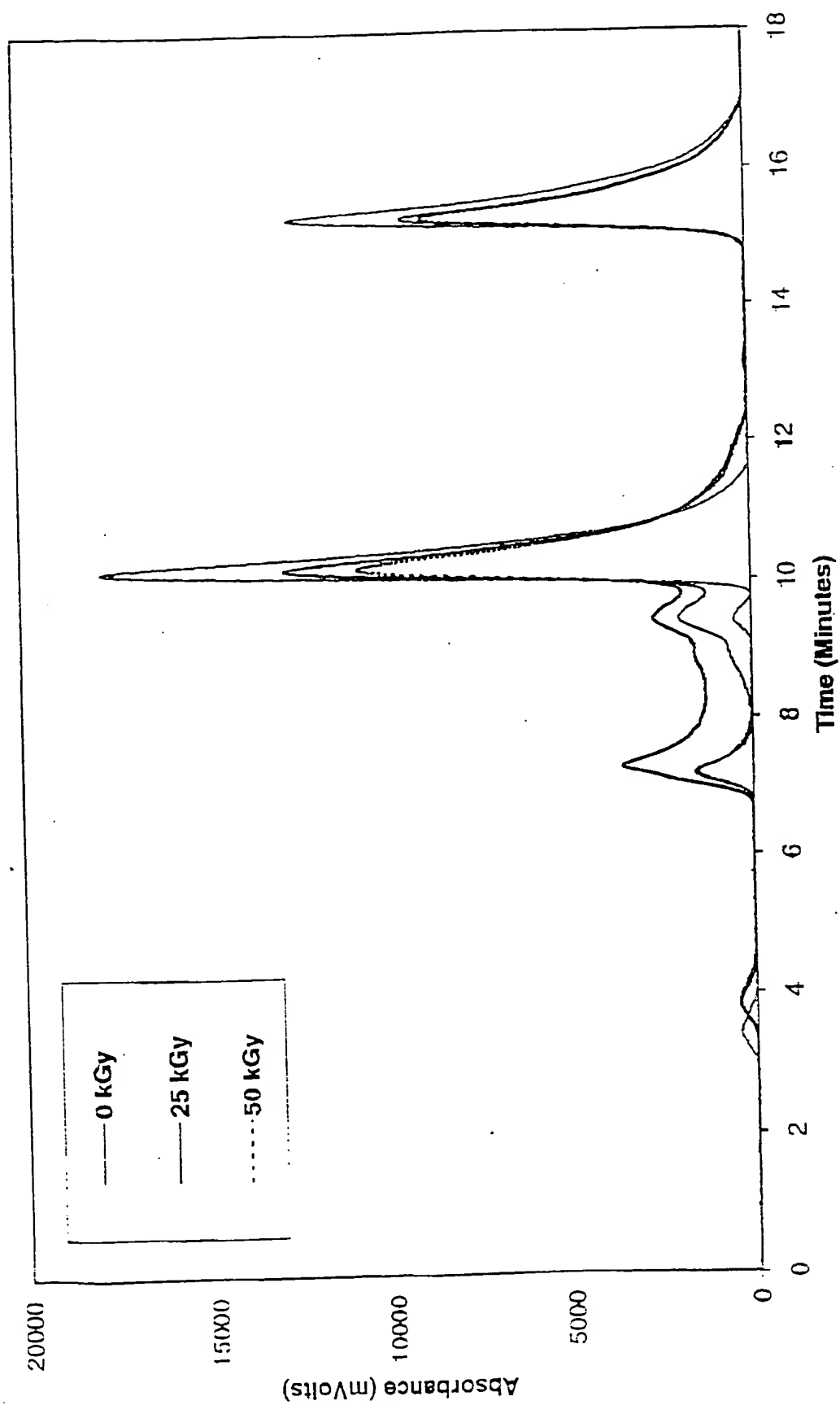
# Gamma Irradiation of 25% Albumin in the Presence of 200 mM Ascorbate



33E



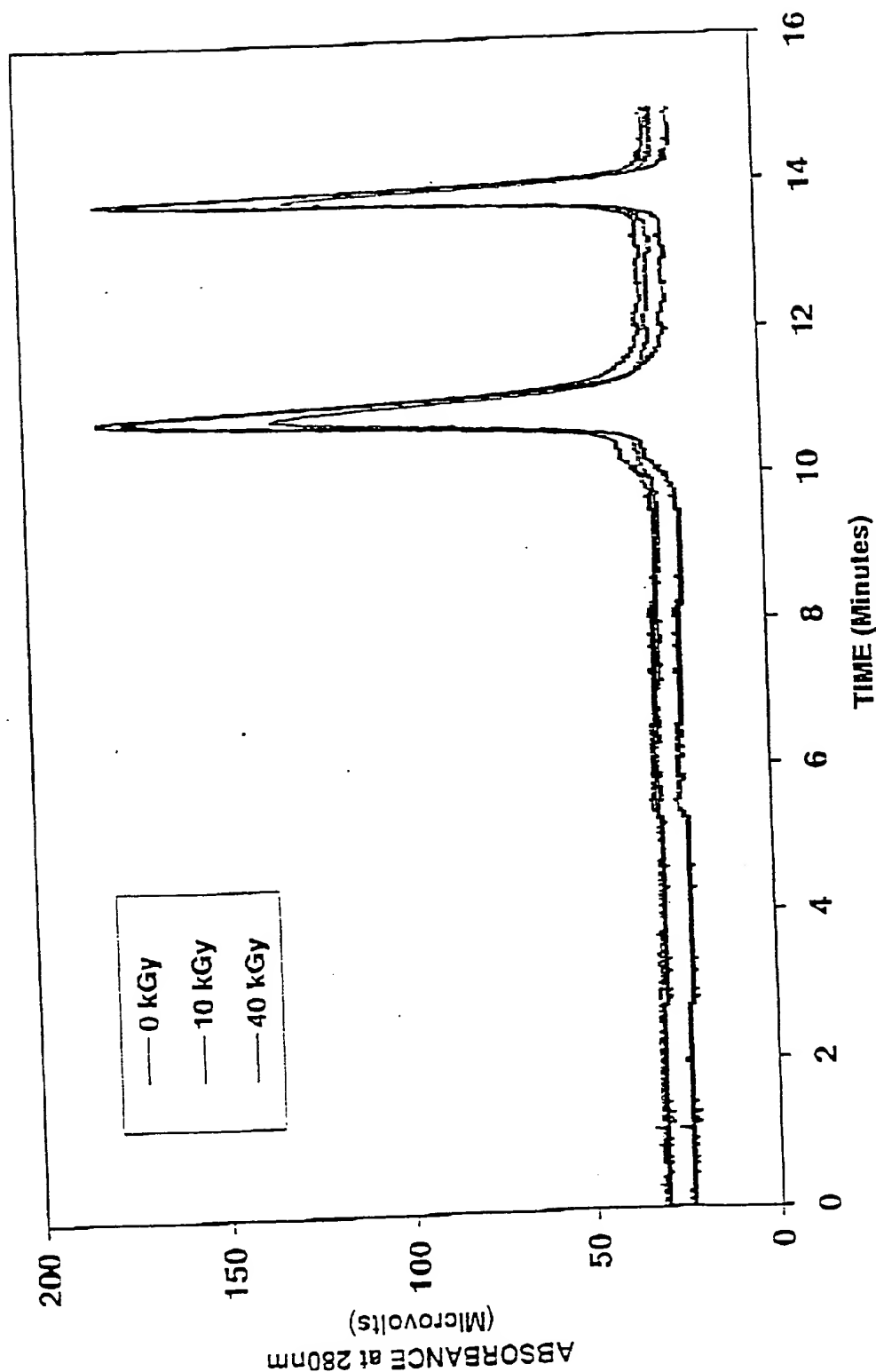
# Gamma Irradiation of 25% Albumin



33F



# Gamma Irradiation of Lyophilized Albumin

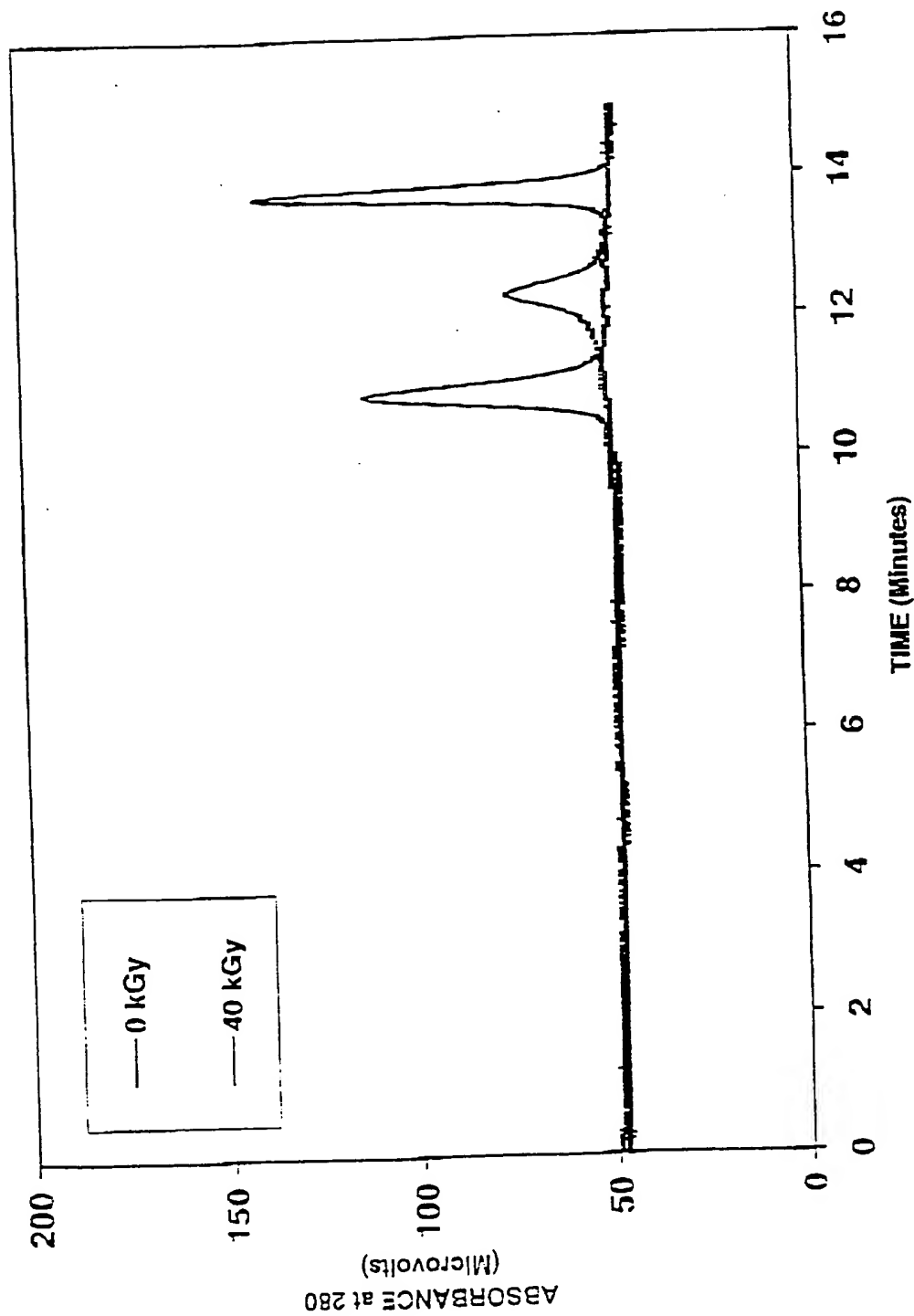


34A



TOT 856260

# Gamma Irradiation of Liquid Albumin

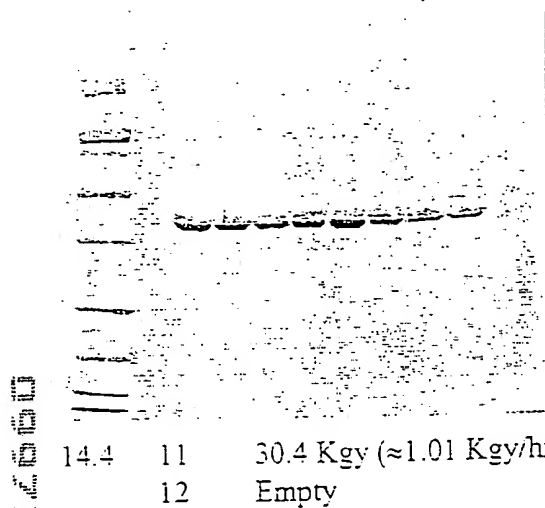


34B



25% Albumin - Non-Reduced

1 2 3 4 5 6 7 8 9 10 11 12

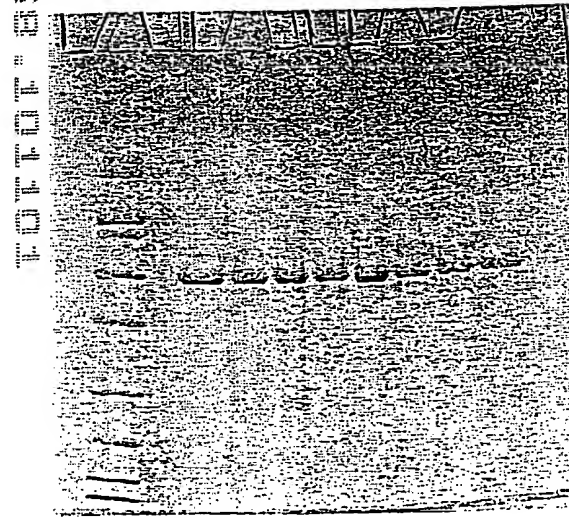


Std	Lane	Sample
Kd	1	Empty
	2	Broad Range Std. (BioRad)
200	3	Empty
116	4	0 Kgy (Control) Box 3C (- Ar)
97	5	18.0 Kgy ( $\approx 0.91$ Kgy/hr) Box 1 (- Ar)
66	6	23.0 Kgy ( $\approx 0.92$ Kgy/hr) Box 2 (- Ar)
45	7	30.4 Kgy ( $\approx 1.01$ Kgy/hr) Box 3 (- Ar)
	8	0 Kgy (Control) Box 3C (- Ar)
31	9	18.0 Kgy ( $\approx 0.91$ Kgy/hr) Box 1 (- Ar)
21.5	10	23.0 Kgy ( $\approx 0.92$ Kgy/hr) Box 2 (- Ar)
14.4	11	30.4 Kgy ( $\approx 1.01$ Kgy/hr) Box 3 (- Ar)
	12	Empty

35A

25% Albumin - Reduced

1 2 3 4 5 6 7 8 9 10 11 12



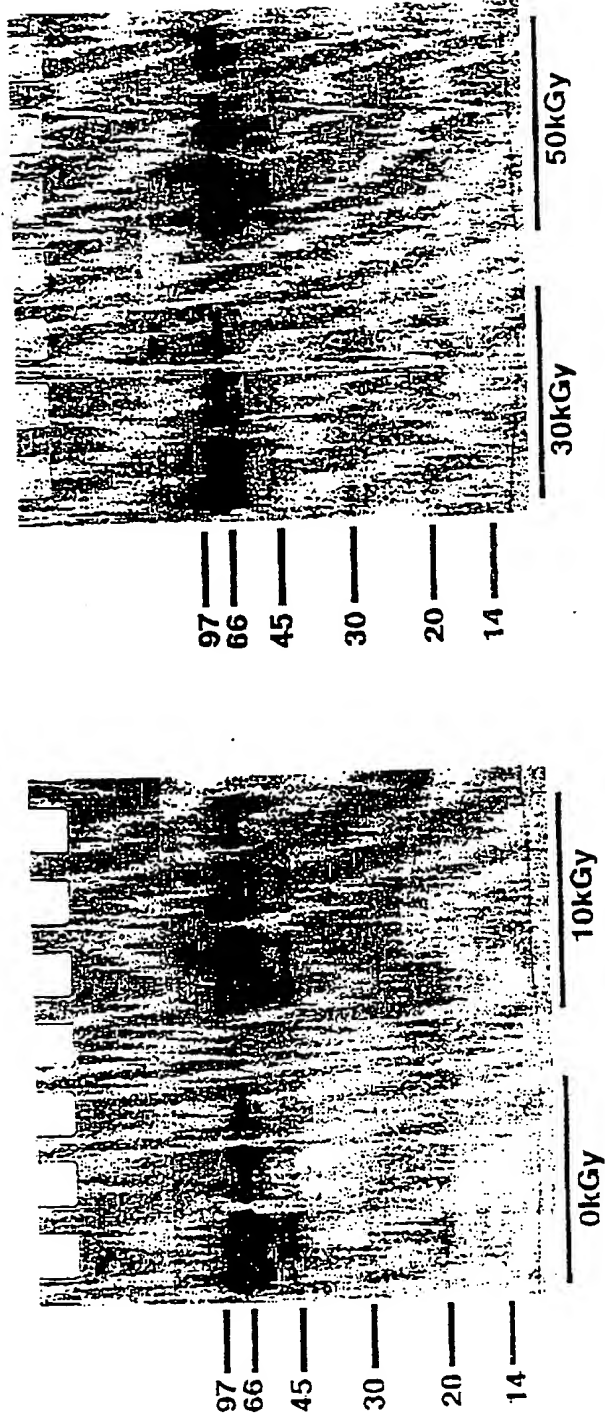
Std	Lane	Sample
Kd	1	Empty
	2	Broad Range Std. (BioRad)
200	3	Empty
116	4	0 Kgy (Control) Box 3C (- Ar)
97	5	18.0 Kgy ( $\approx 0.91$ Kgy/hr) Box 1 (+ Ar)
66	6	23.0 Kgy ( $\approx 0.92$ Kgy/hr) Box 2 (+ Ar)
45	7	30.4 Kgy ( $\approx 1.01$ Kgy/hr) Box 3 (+ Ar)
	8	0 Kgy (Control) Box 3C (- Ar)
31	9	18.0 Kgy ( $\approx 0.91$ Kgy/hr) Box 1 (- Ar)
21.5	10	23.0 Kgy ( $\approx 0.92$ Kgy/hr) Box 2 (- Ar)
14.4	11	30.4 Kgy ( $\approx 1.01$ Kgy/hr) Box 3 (- Ar)
	12	Empty

35B



TOP SECRET  
Gamma Irradiation of Powder PPF at -20°C

Reduced



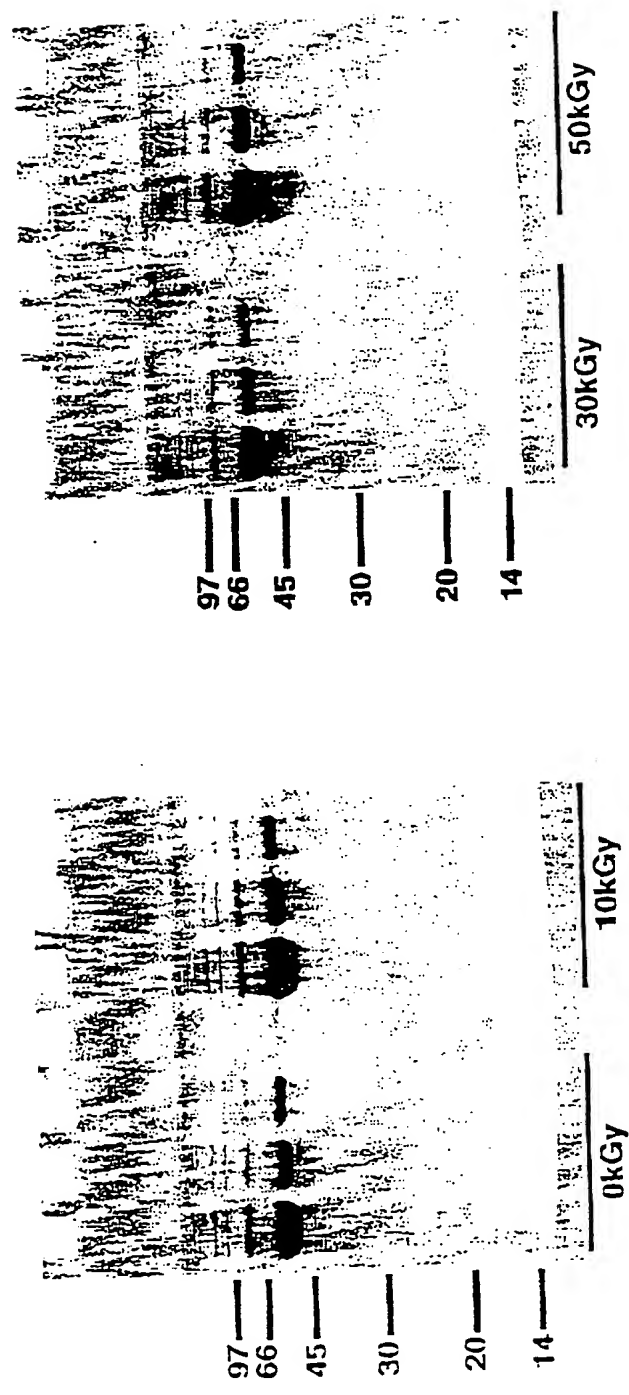
36A



10101-856260

# Gamma Irradiation of Powder PPF at -20°C

Nonreduced

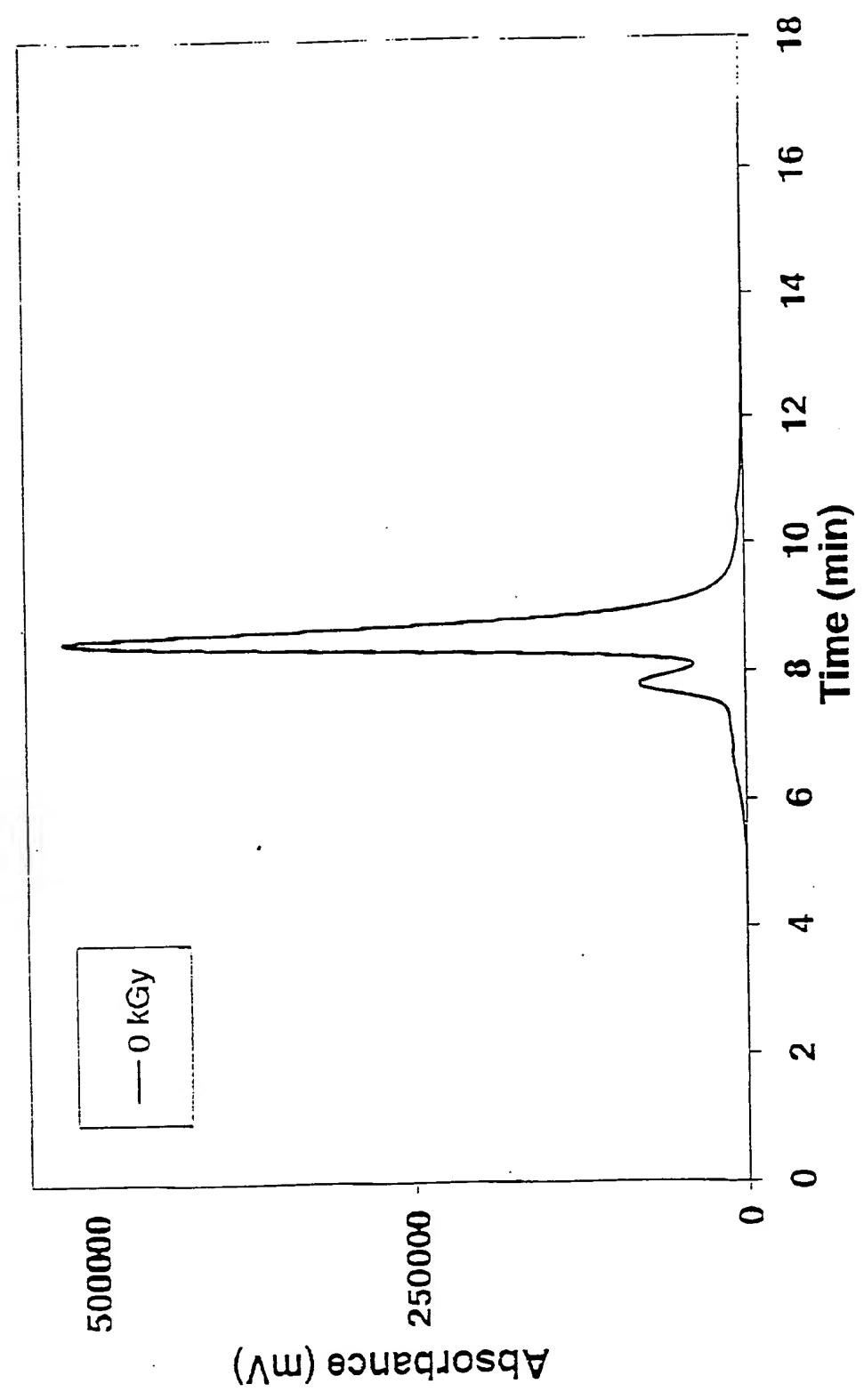


36B



PPF07 890200

# Gamma Irradiation of Powder PPF

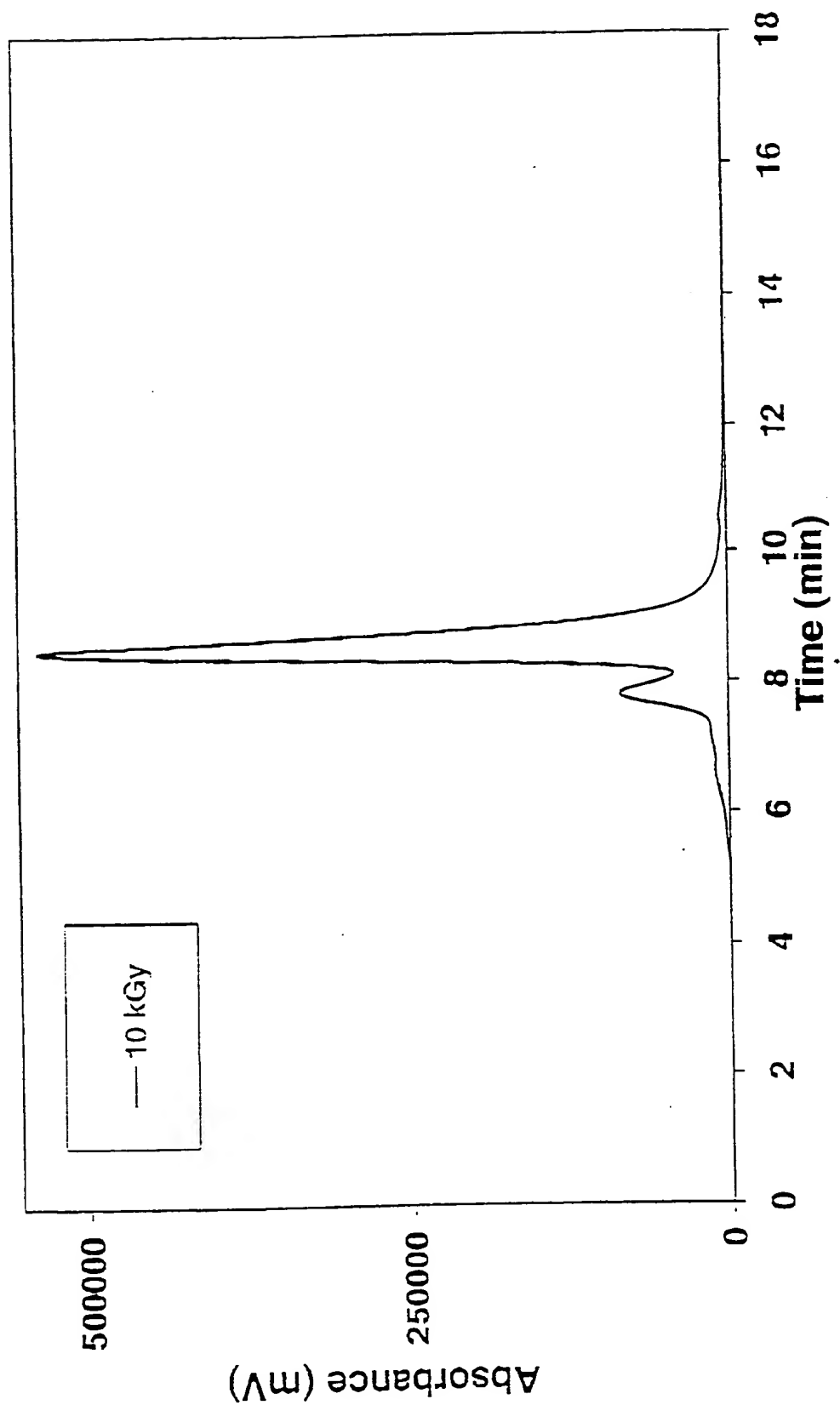


36C



PPF-03062050

## Gamma Irradiation of Powder PPF

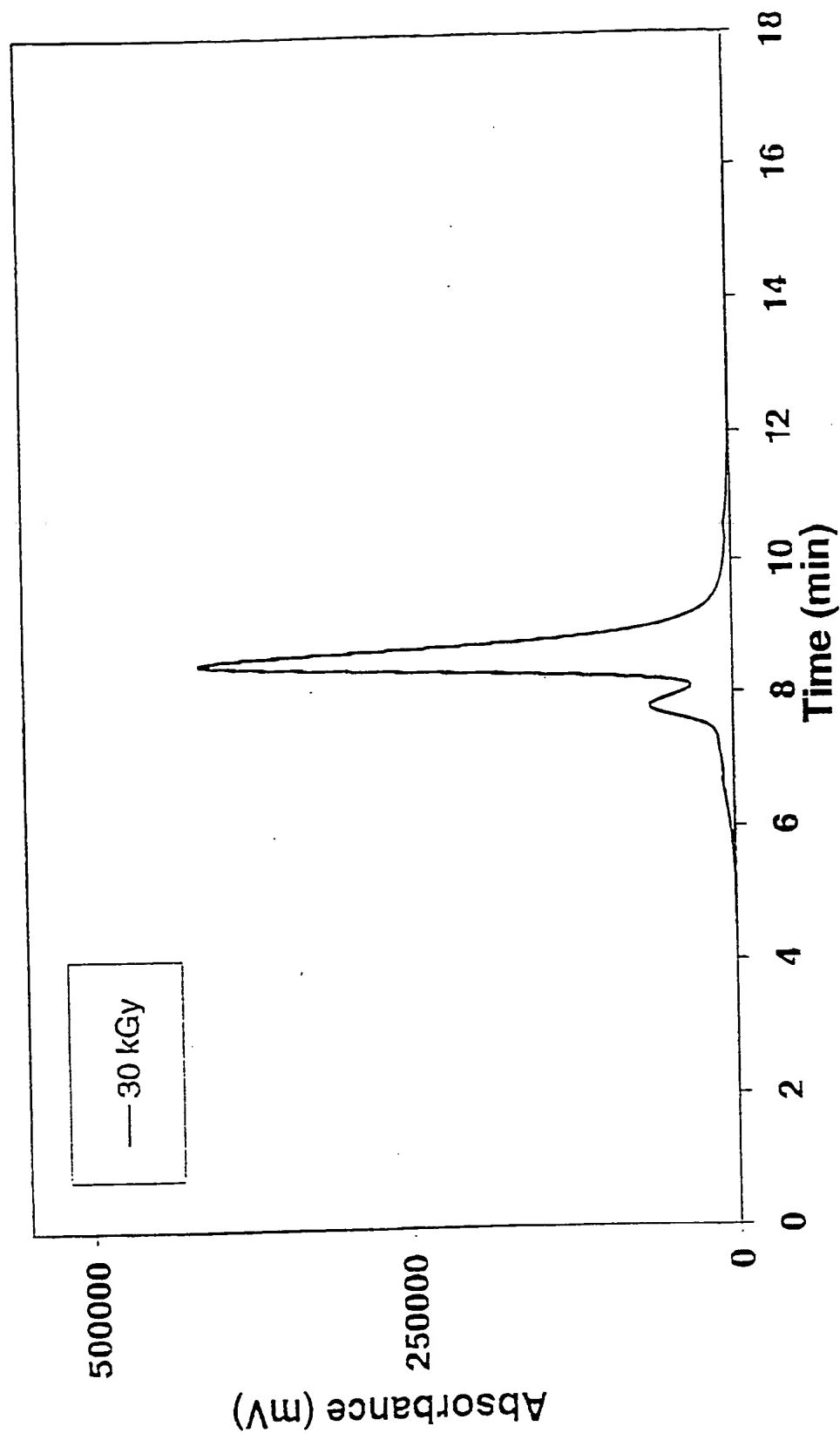


36D



PPF-0500

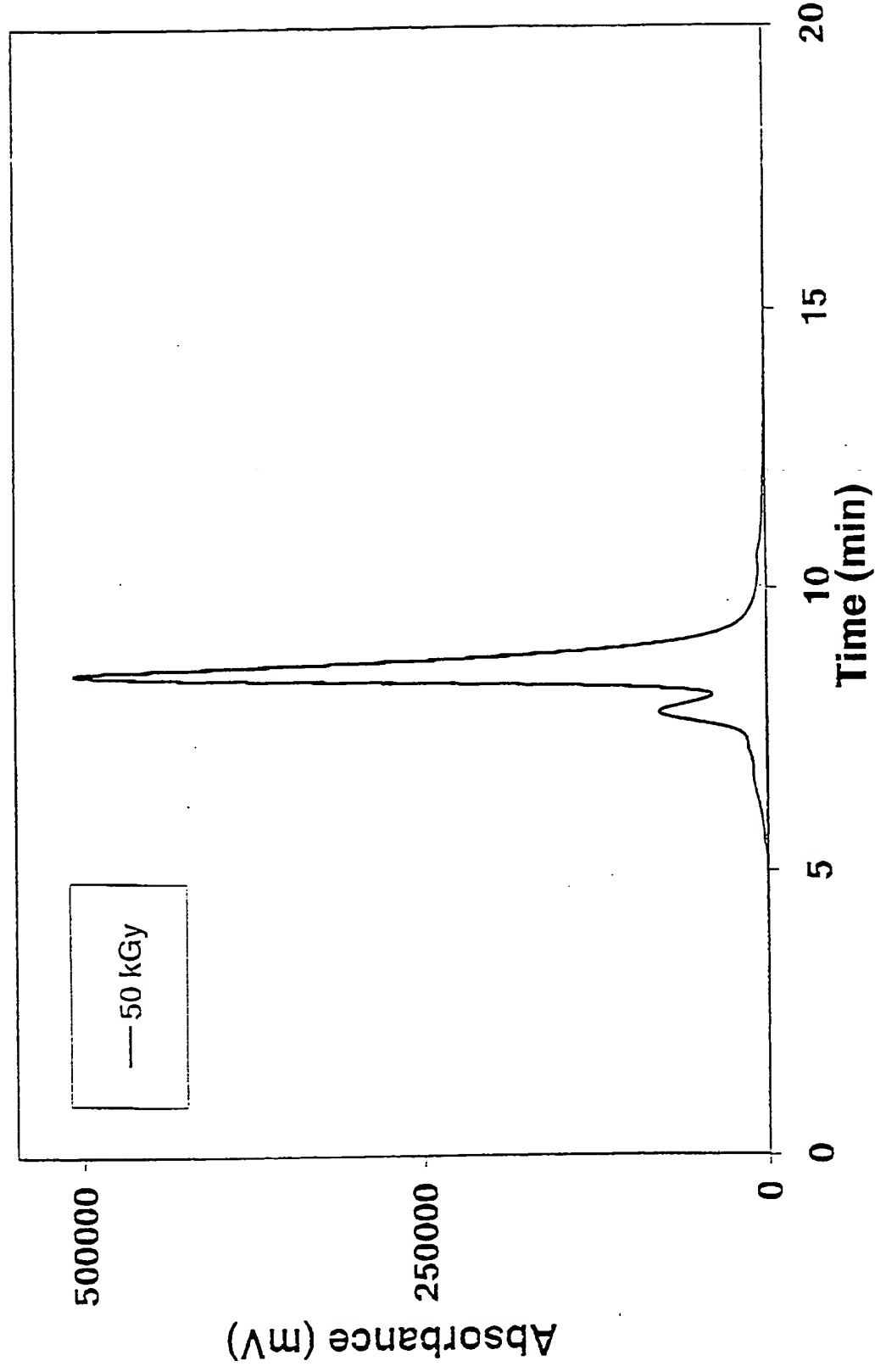
# Gamma Irradiation of Powder PPF



36E



# Gamma Irradiation of Powder PPF

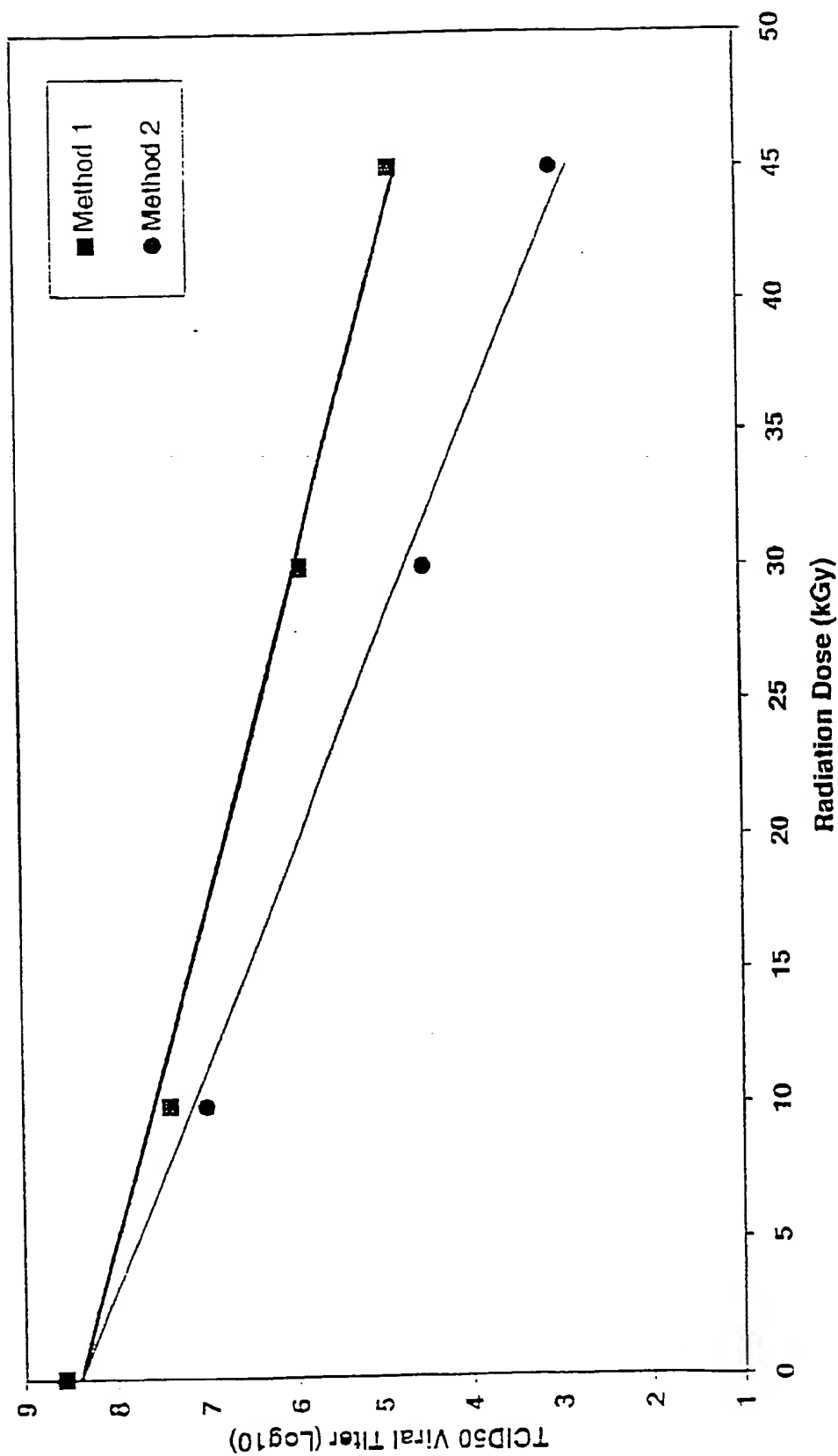


36F



PPV-350200

# Gamma Irradiation of PPV in PPF by Irradiation at -80oC



37A

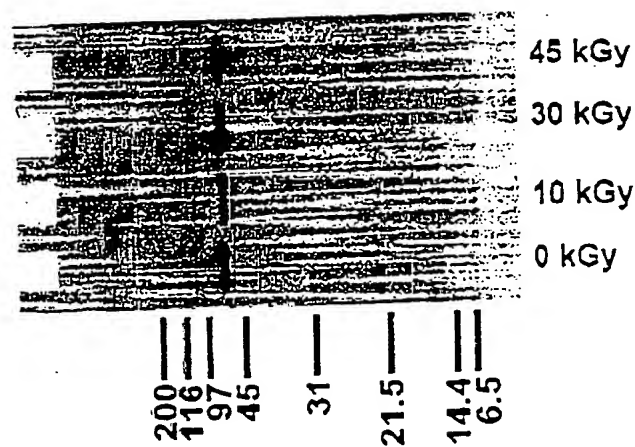
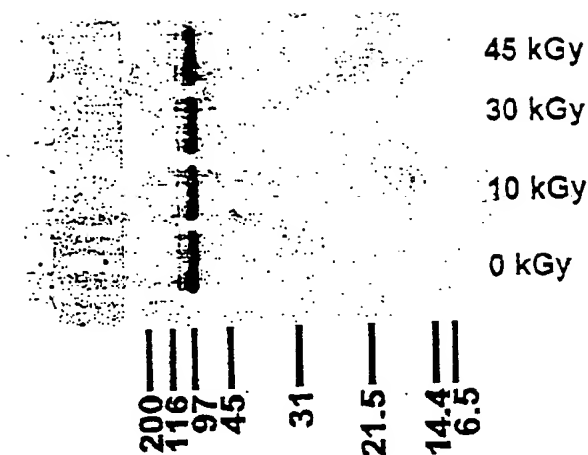


TOP SECRET

# Gamma Irradiation of PPF By Method 2

Reduced 12.5%

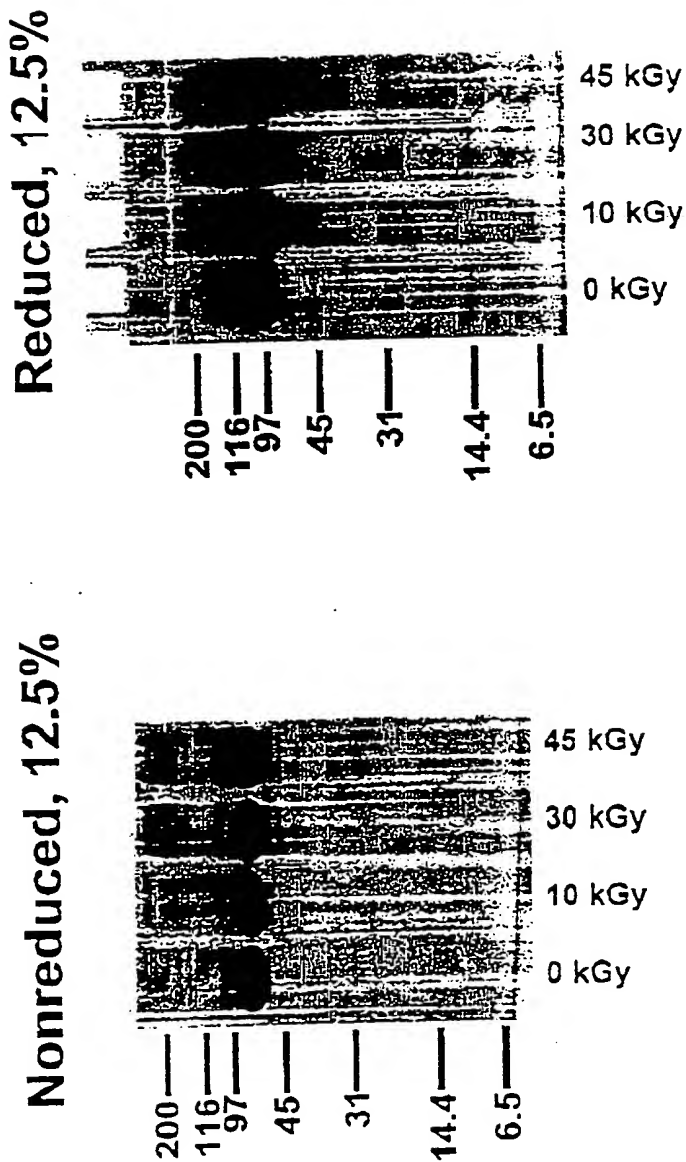
Nonreduced, 12.5%



37B



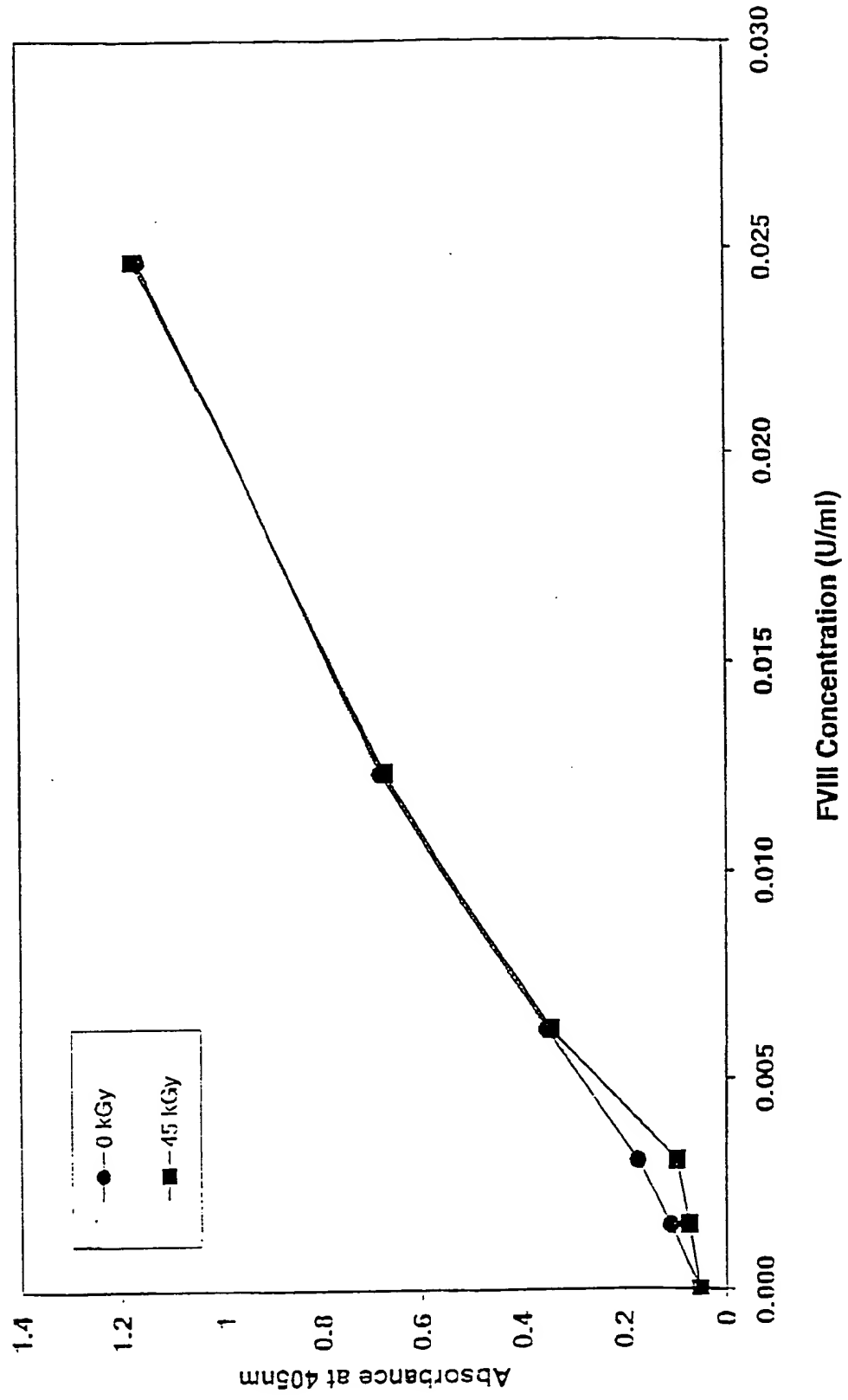
# 083101.alb.04/ 073001.jla.016 Gamma Irradiation of PPF By Method 1



37C

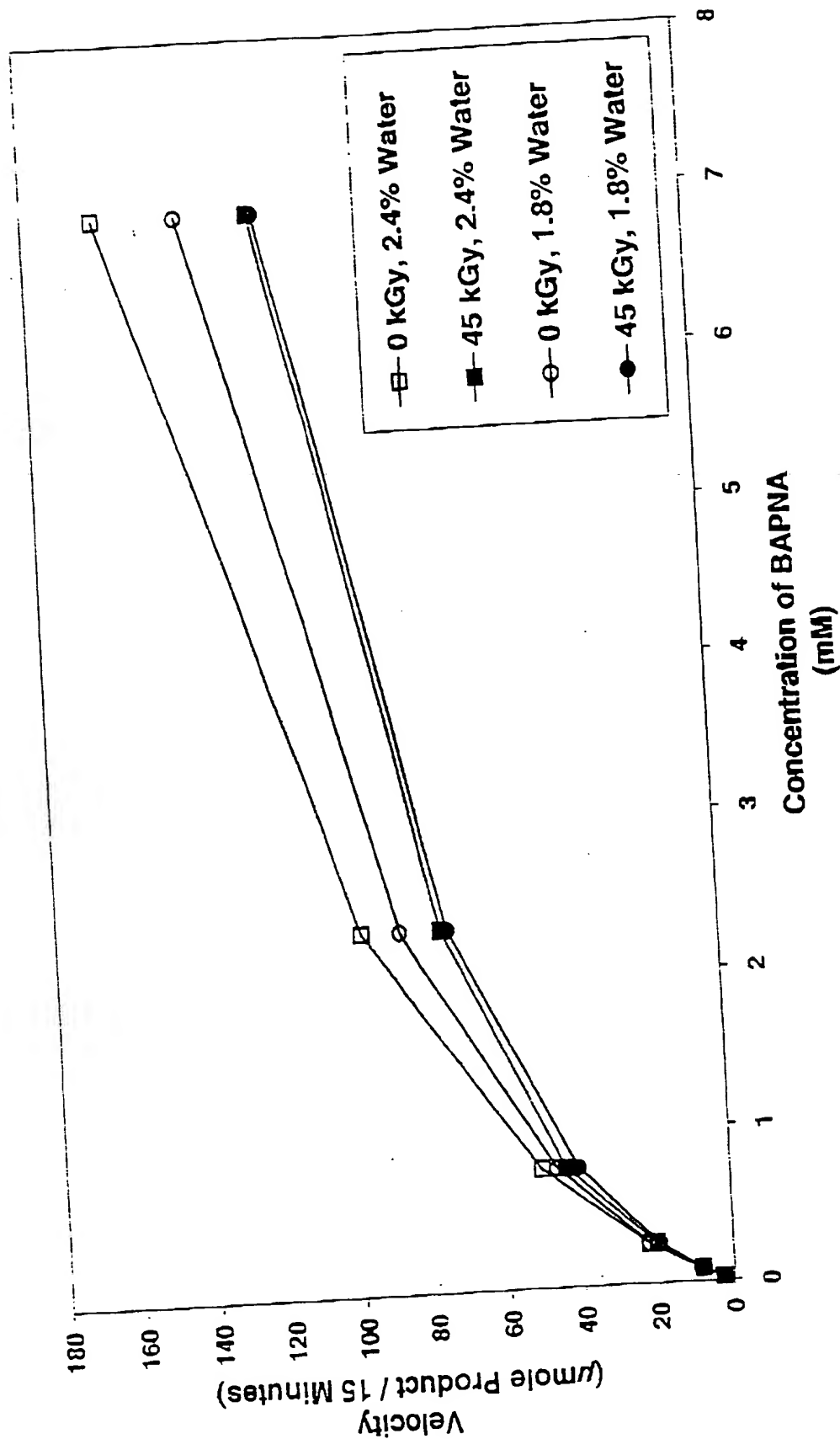


### Gamma Irradiation of FVIII



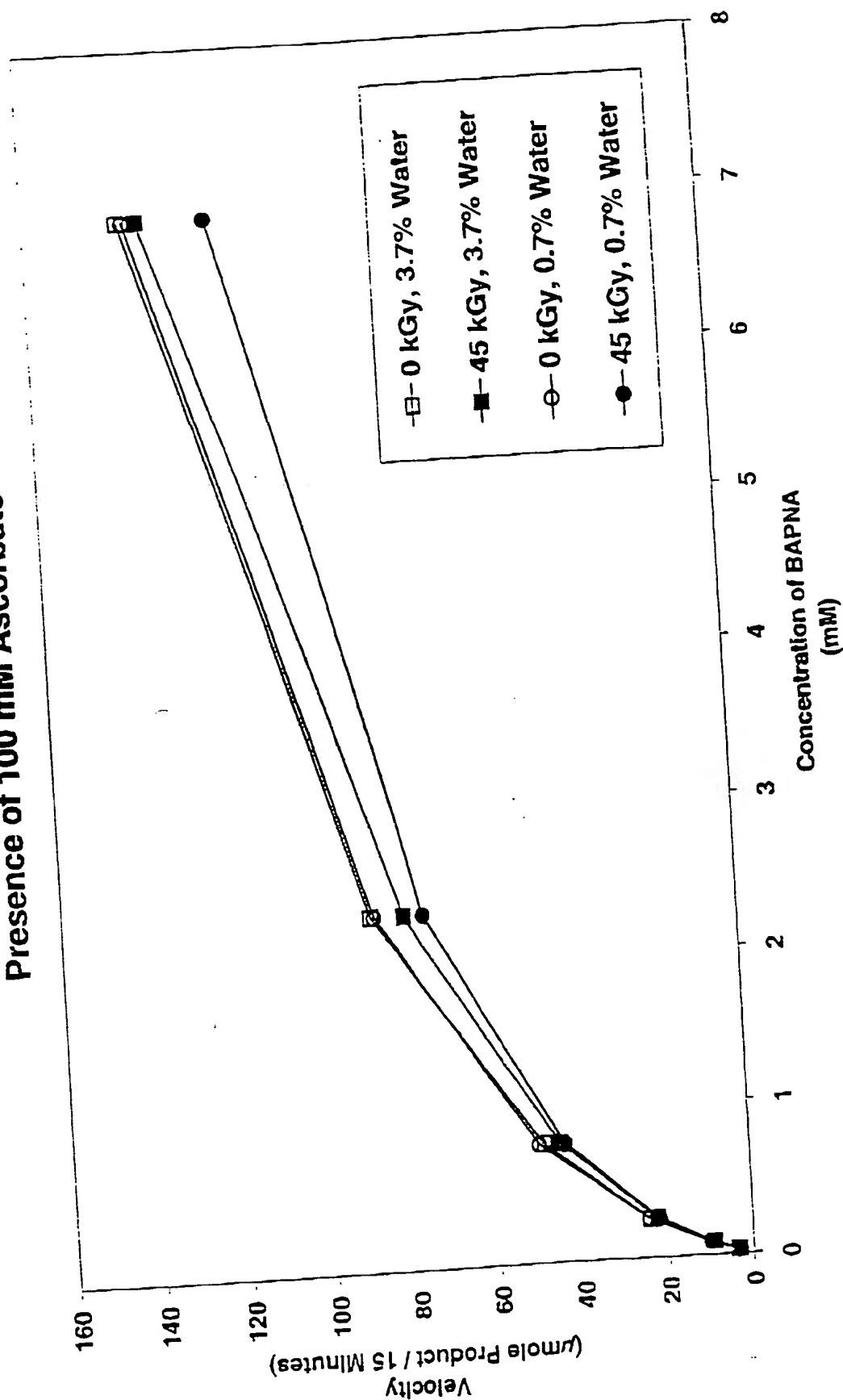


# Gamma Irradiation of Lyophilized Trypsin In the Absence of Ascorbate





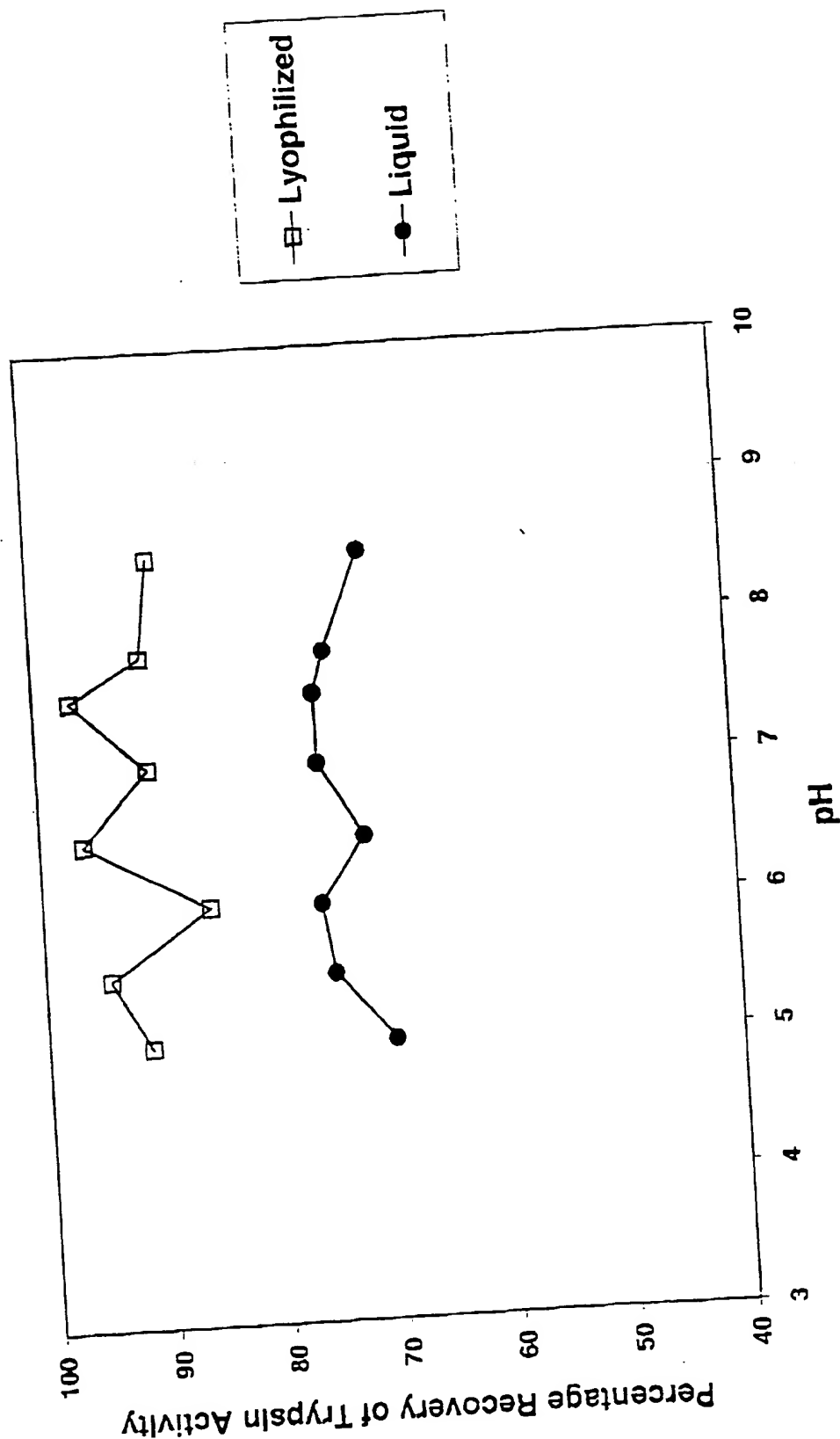
# Gamma Irradiation of Lyophilized Trypsin In the Presence of 100 mM Ascorbate



39B

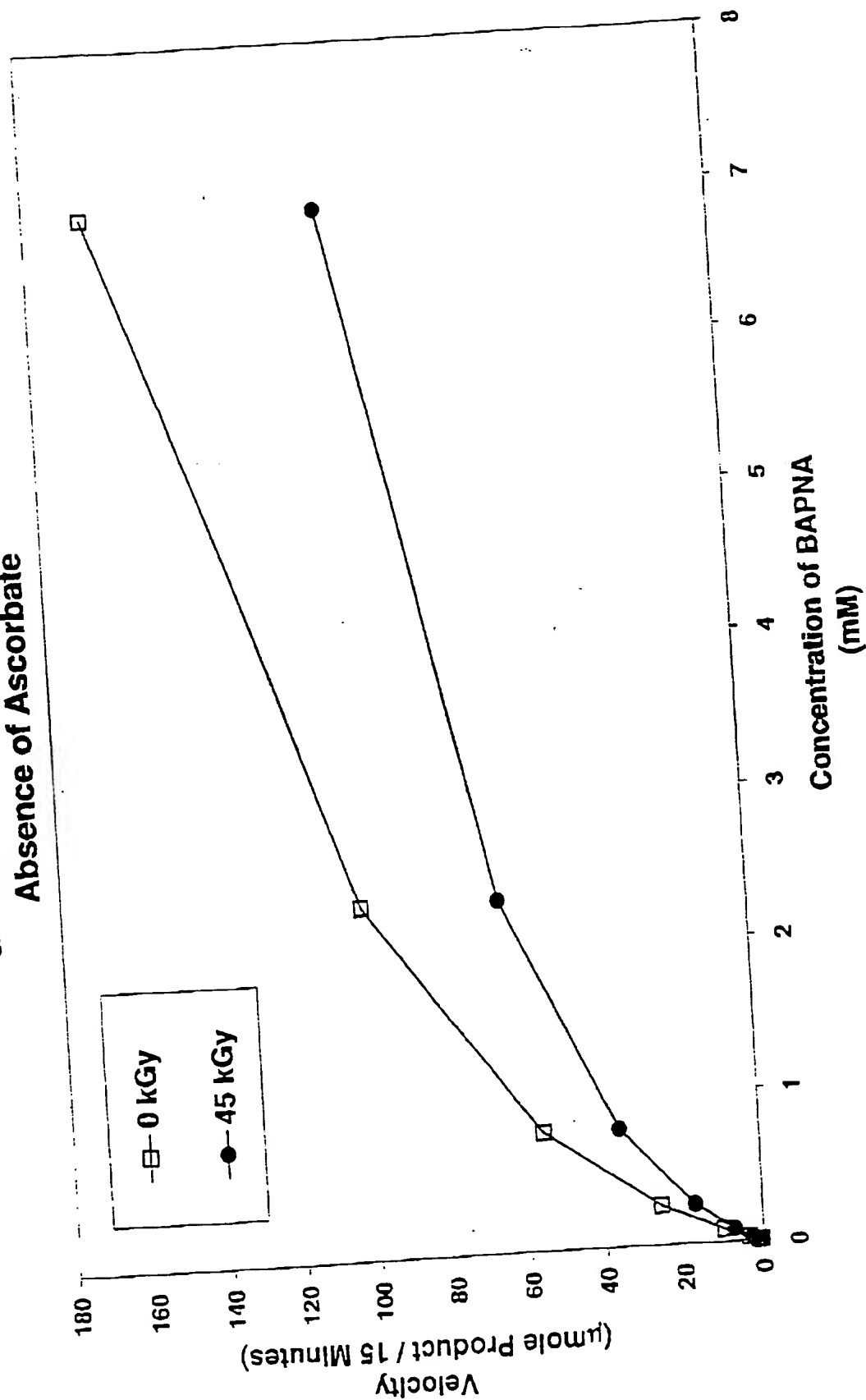


# Gamma Irradiation of Two Forms of Trypsin In the Presence of 200 mM Ascorbate





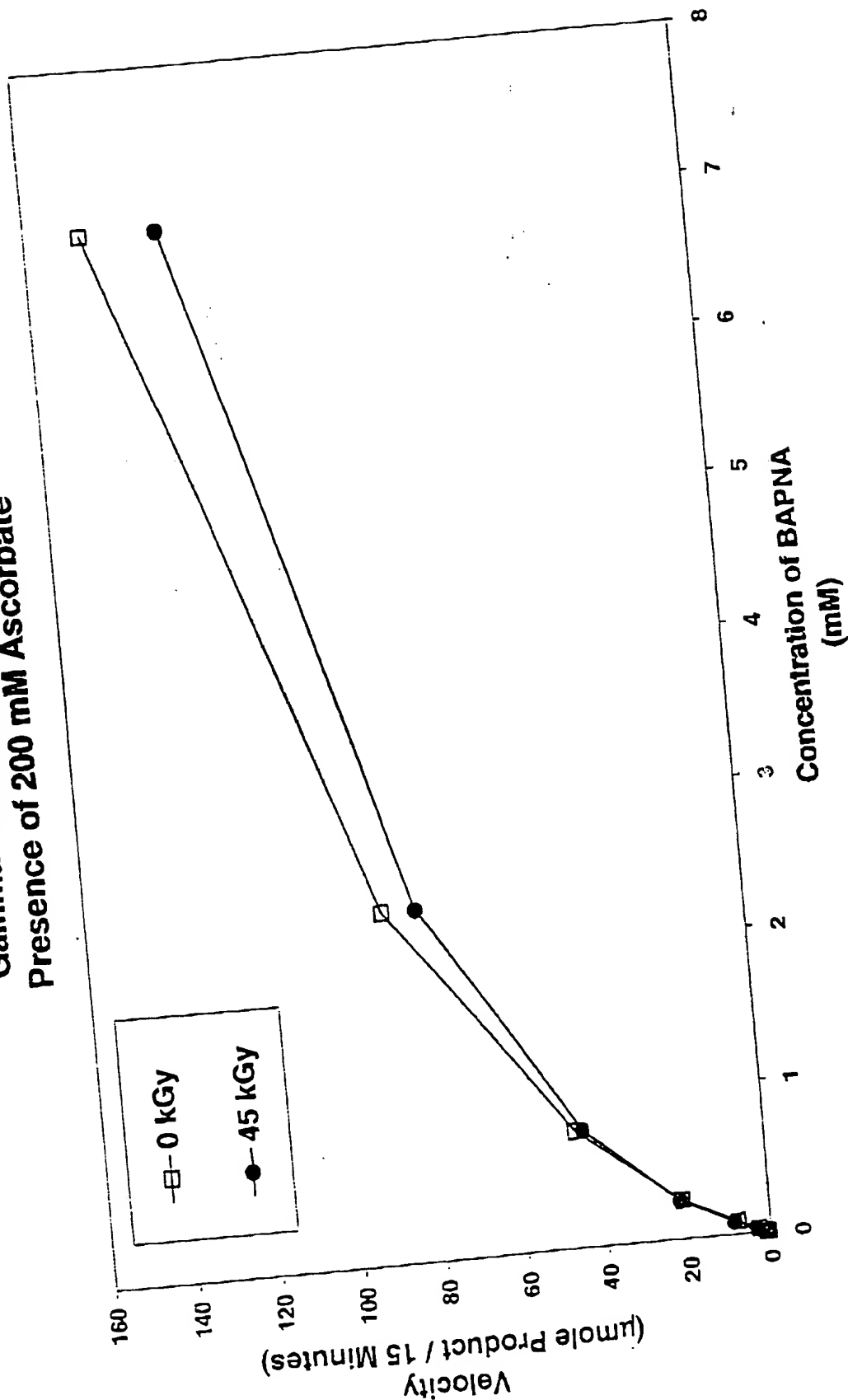
# Gamma Irradiation of Lyophilized Trypsin in the Absence of Ascorbate





TOP SECRET

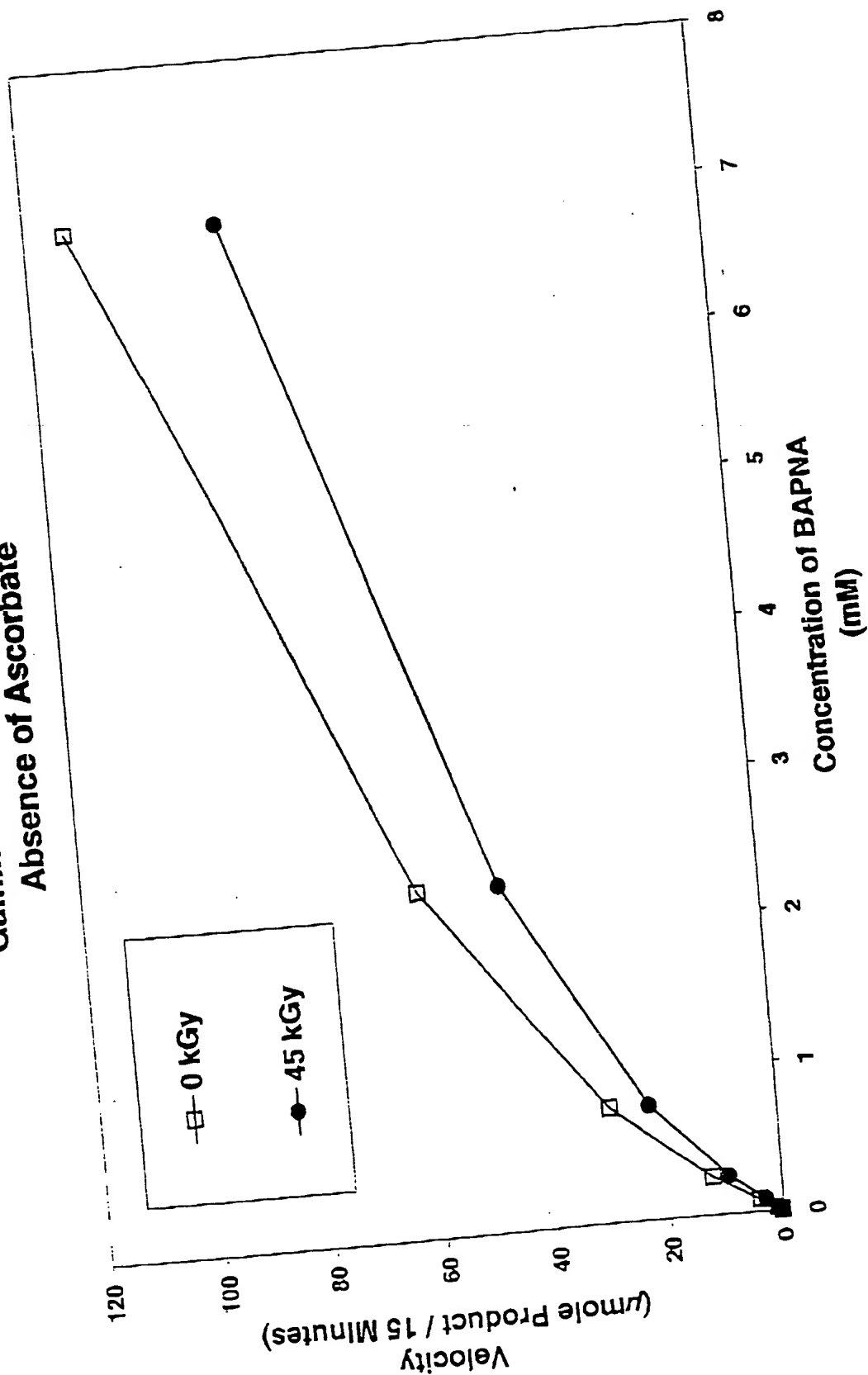
# Gamma Irradiation of Lyophilized Trypsin in the Presence of 200 mM Ascorbate



41B



# Gamma Irradiation of Lyophilized Trypsin In the Absence of Ascorbate

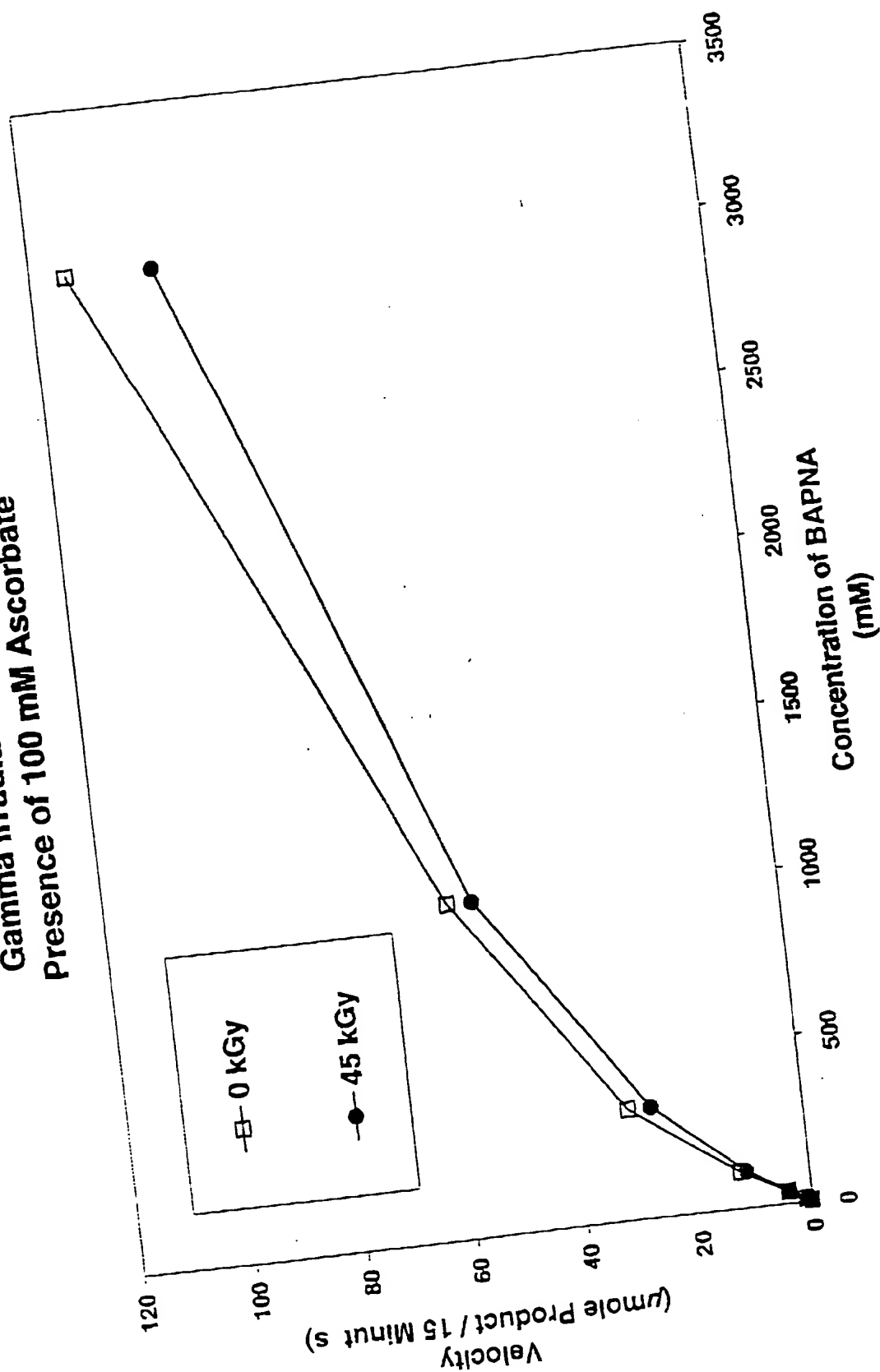


42A



REF: 336260

# Gamma Irradiation of Lyophilized Trypsin in the Presence of 100 mM Ascorbate

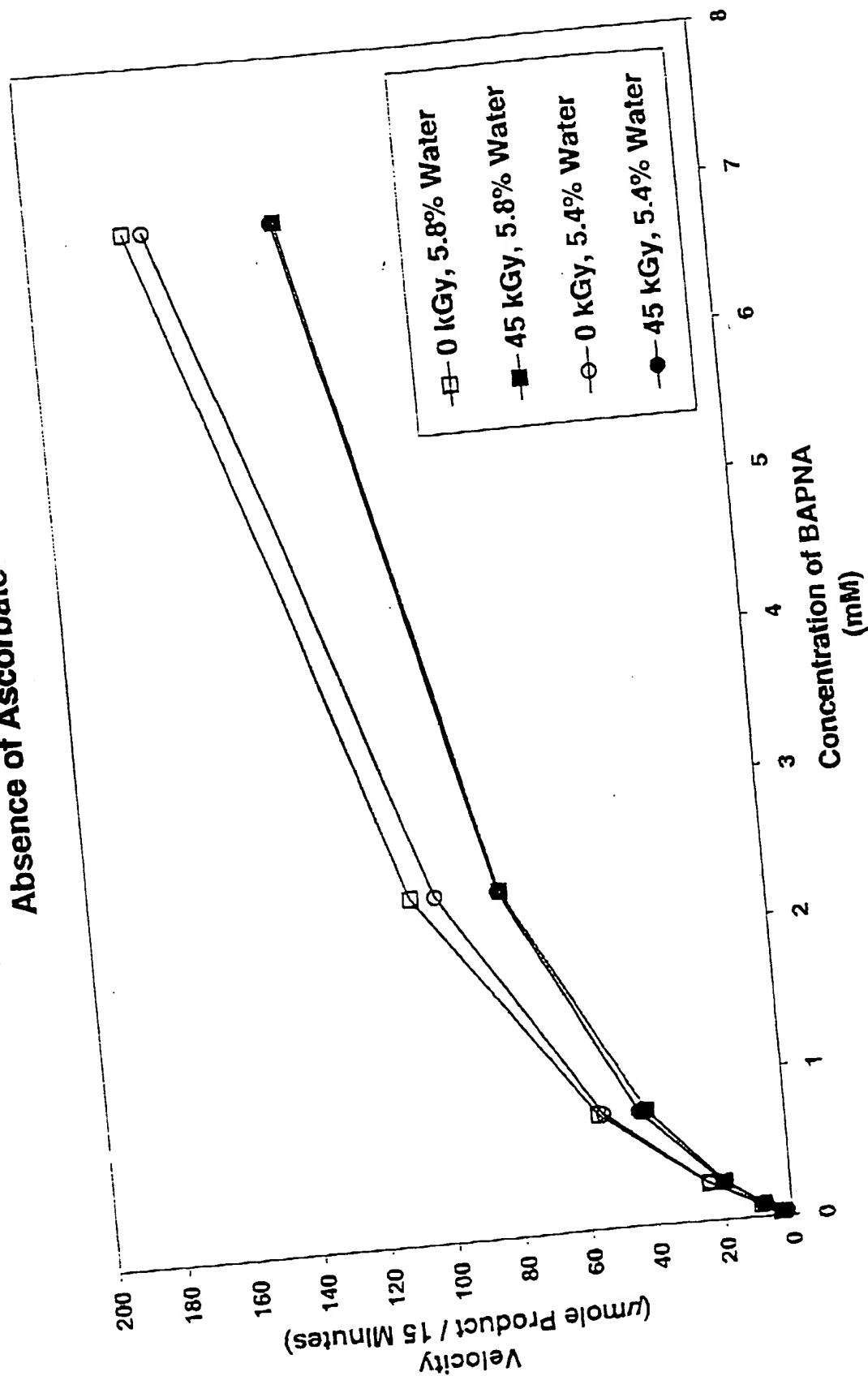


42B



FOOT 332200

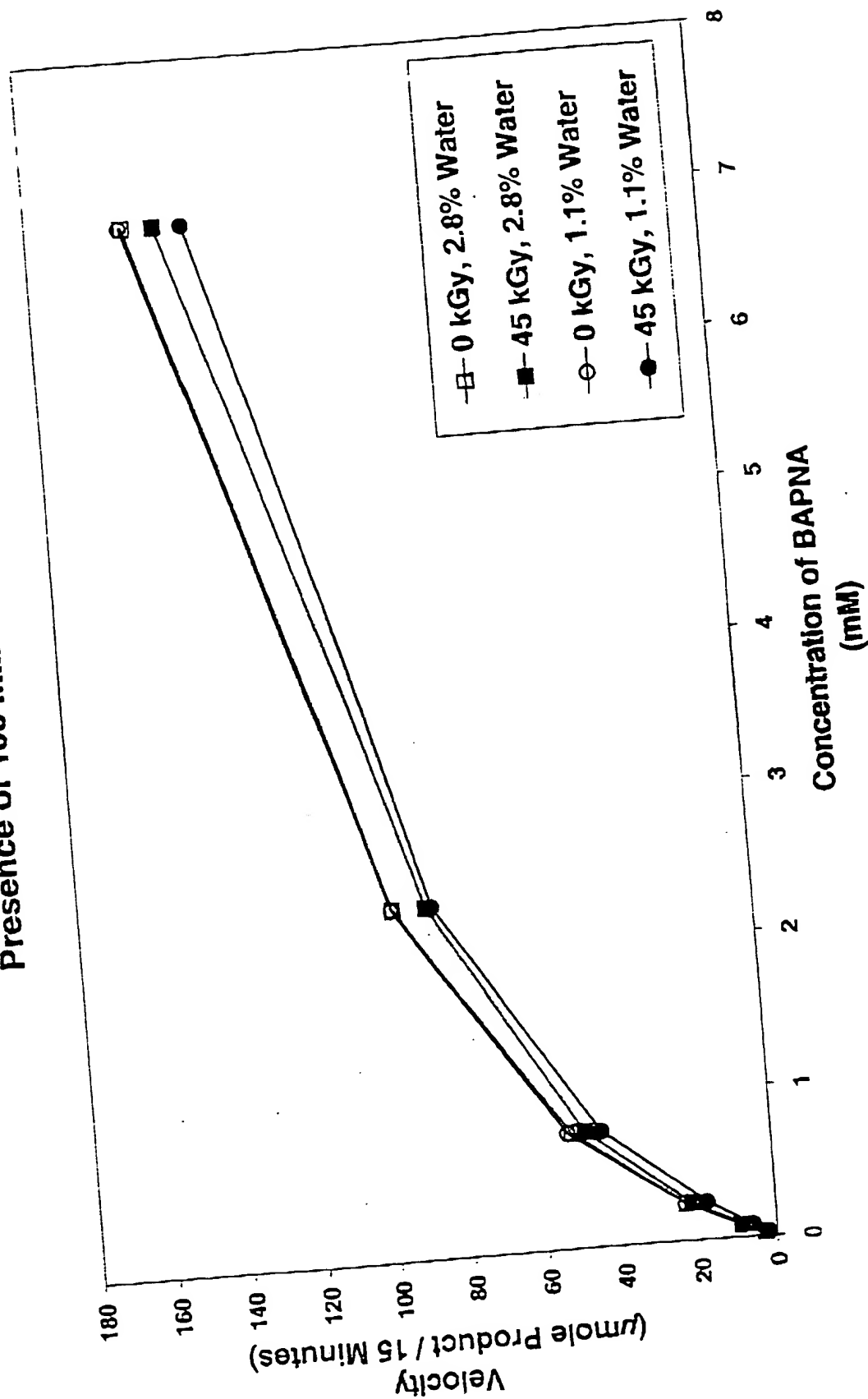
# Gamma Irradiation of Lyophilized Trypsin In the Absence of Ascorbate



43A



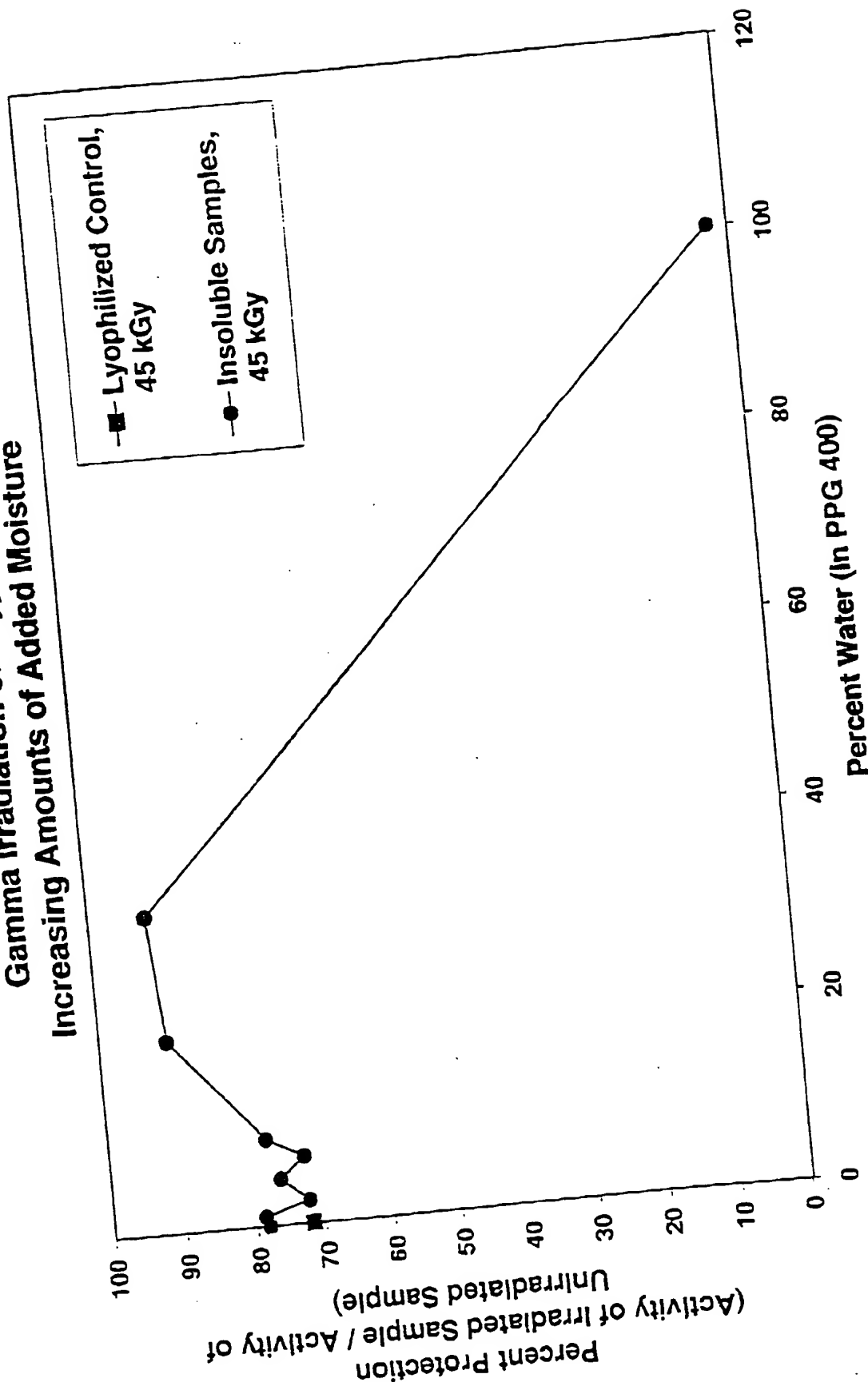
# Gamma Irradiation of Lyophilized Trypsin In the Presence of 100 mM Ascorbate



43B

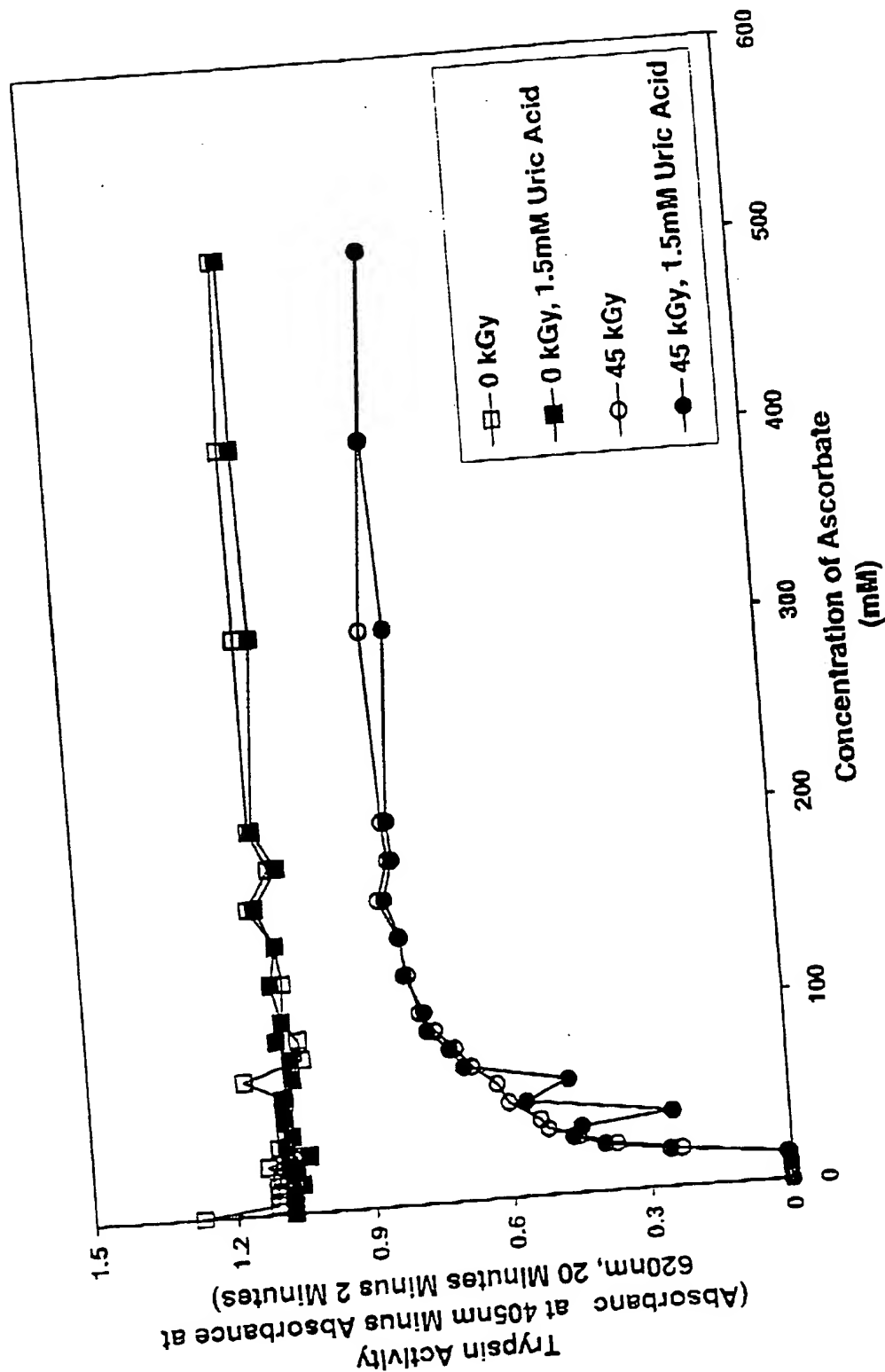


# Gamma Irradiation of Trypsin in the Presence of Increasing Amounts of Added Moisture





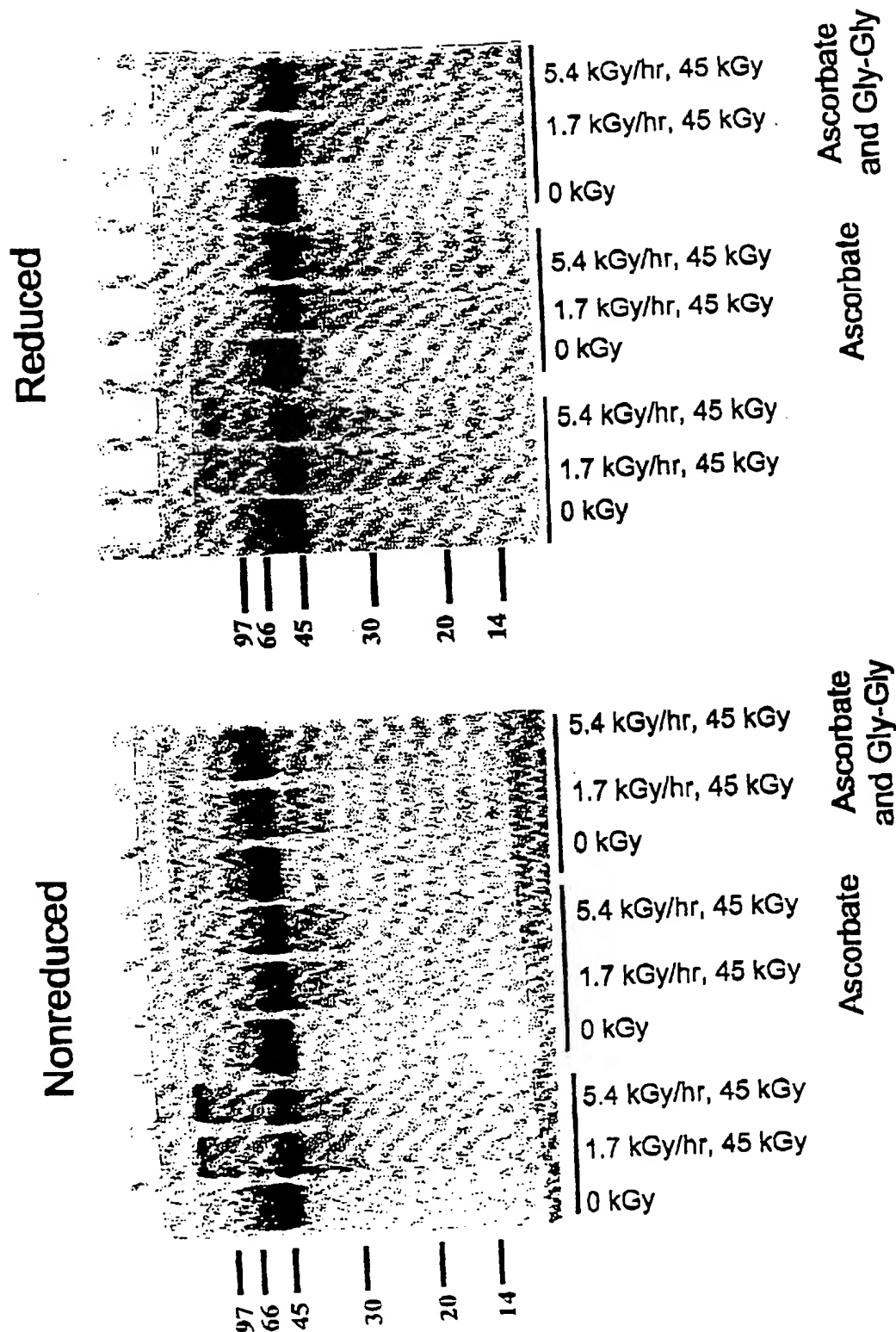
# Gamma Irradiation of Liquid Trypsin in the Presence of Increasing Concentrations of Ascorbate





10101 8562660

# SDS-PAGE for a Glycosidase

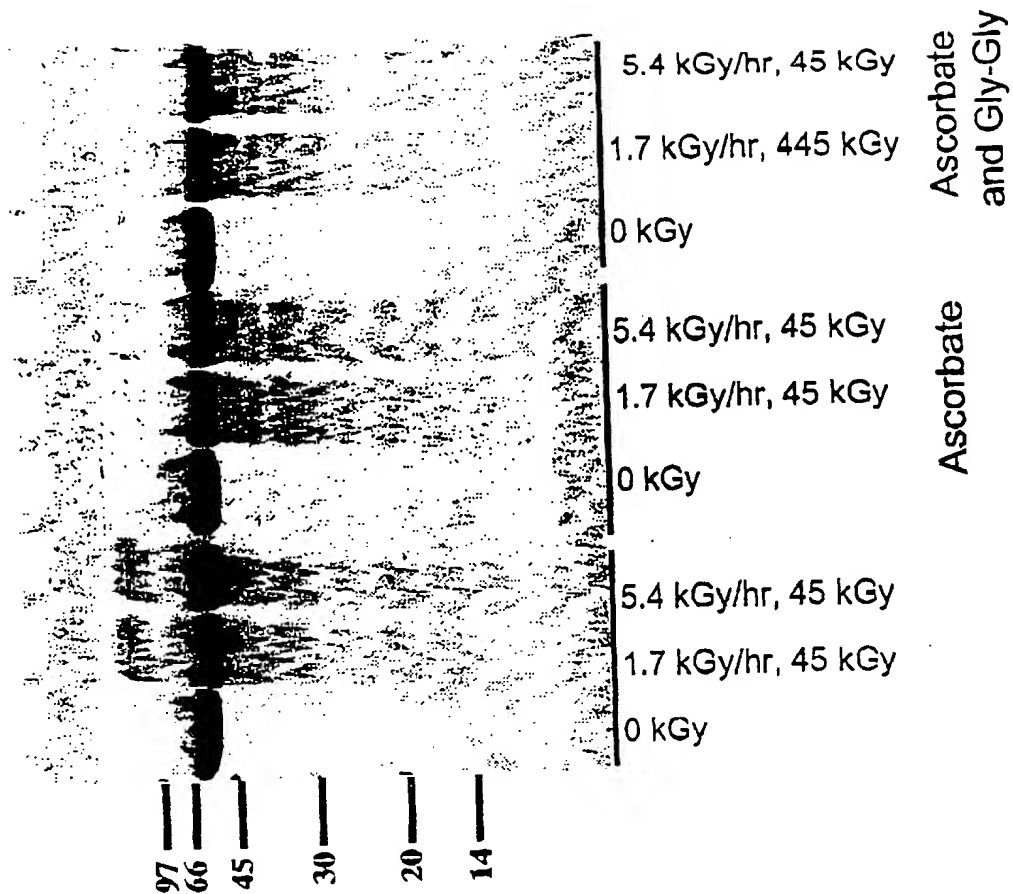


46A



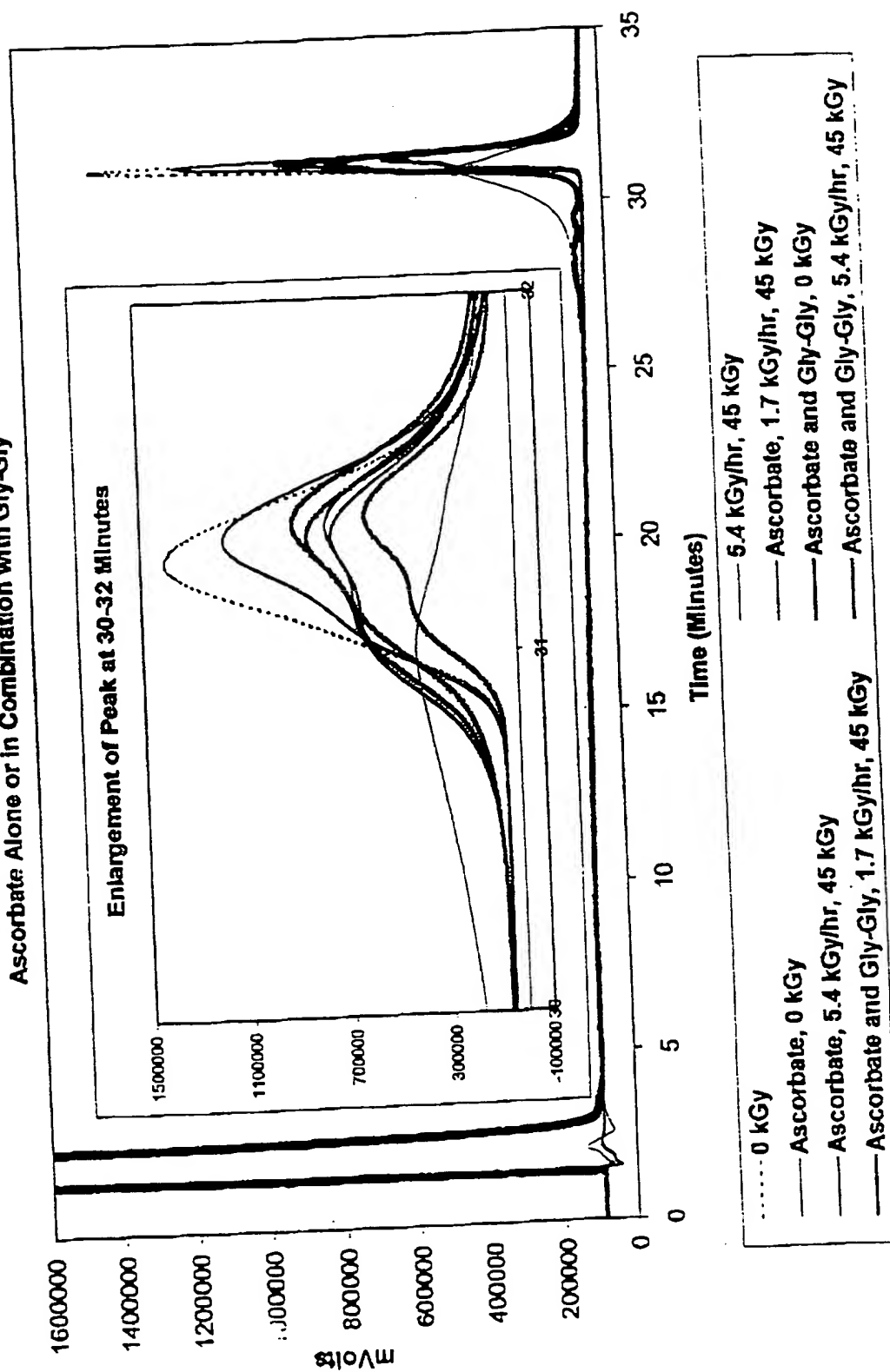
# SDS-PAGE for a Sulfatase

Reduced

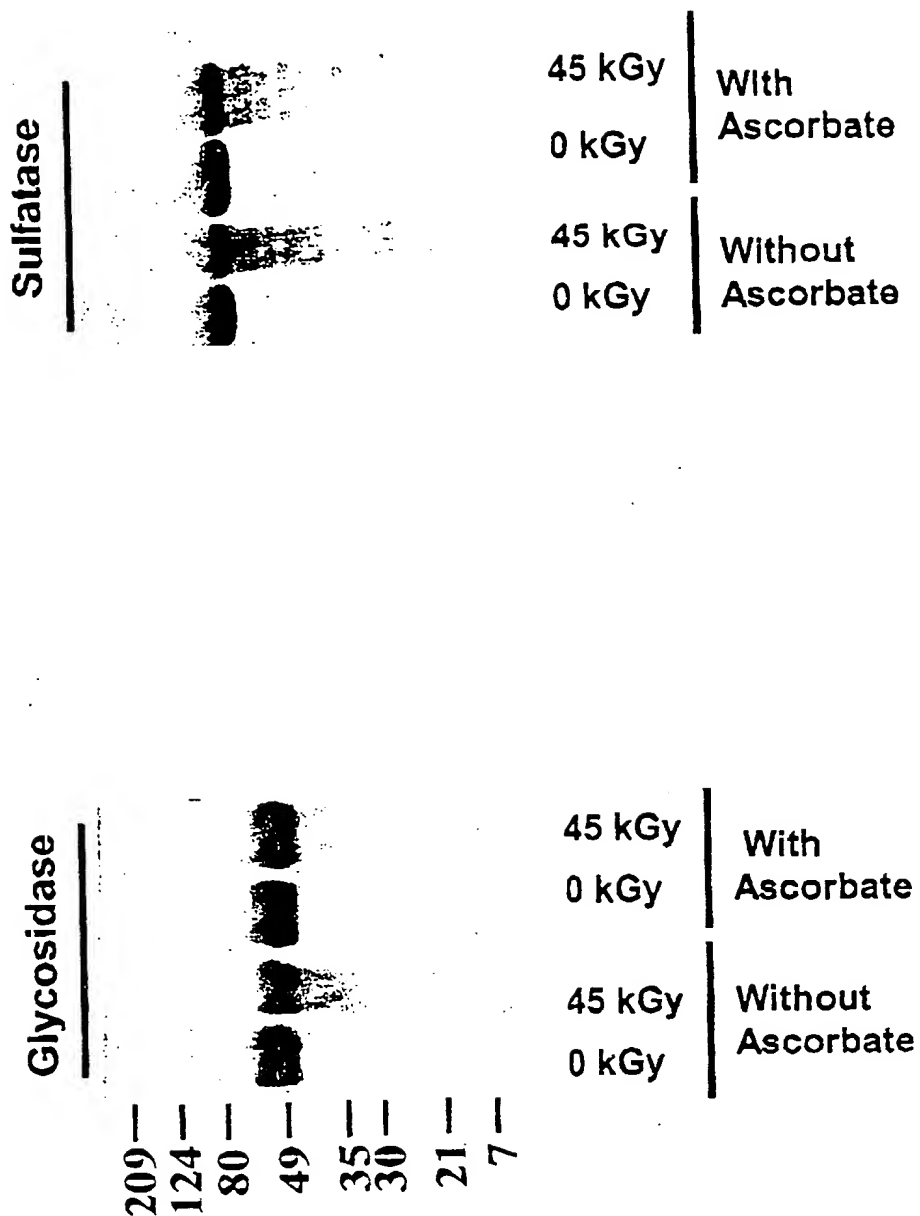


46B





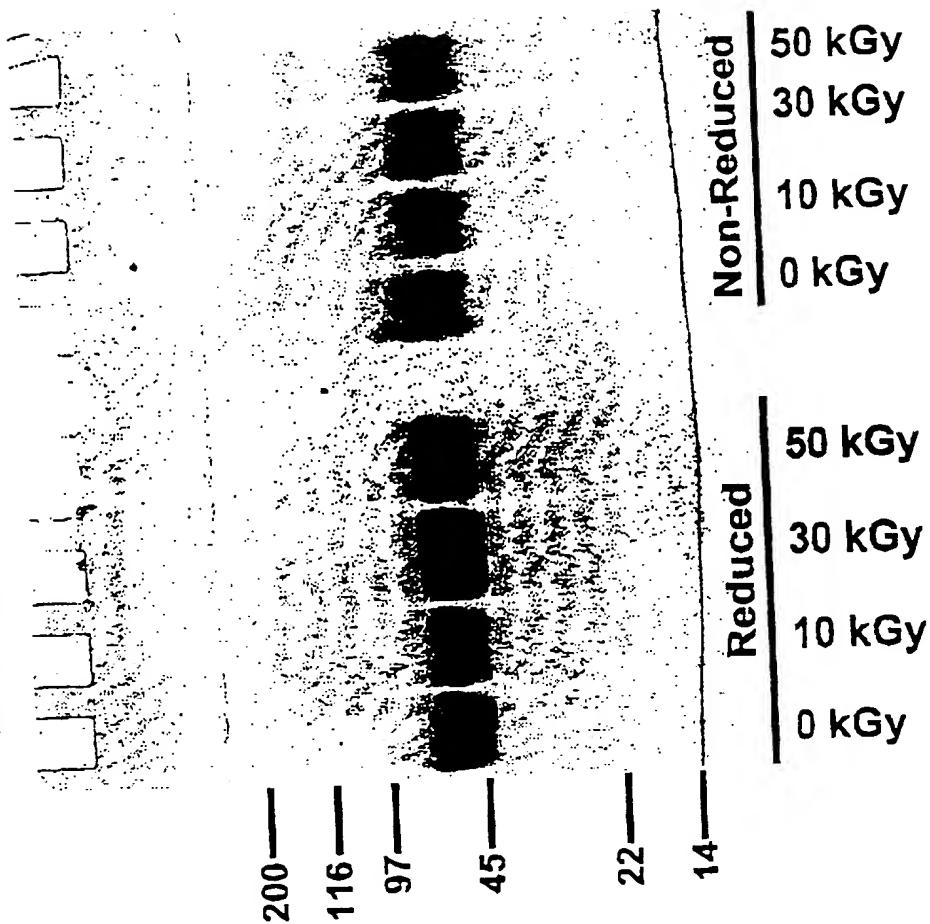






# Gamma Irradiation of a Lyophilized Glycosidase In the Absence of Stabilizers

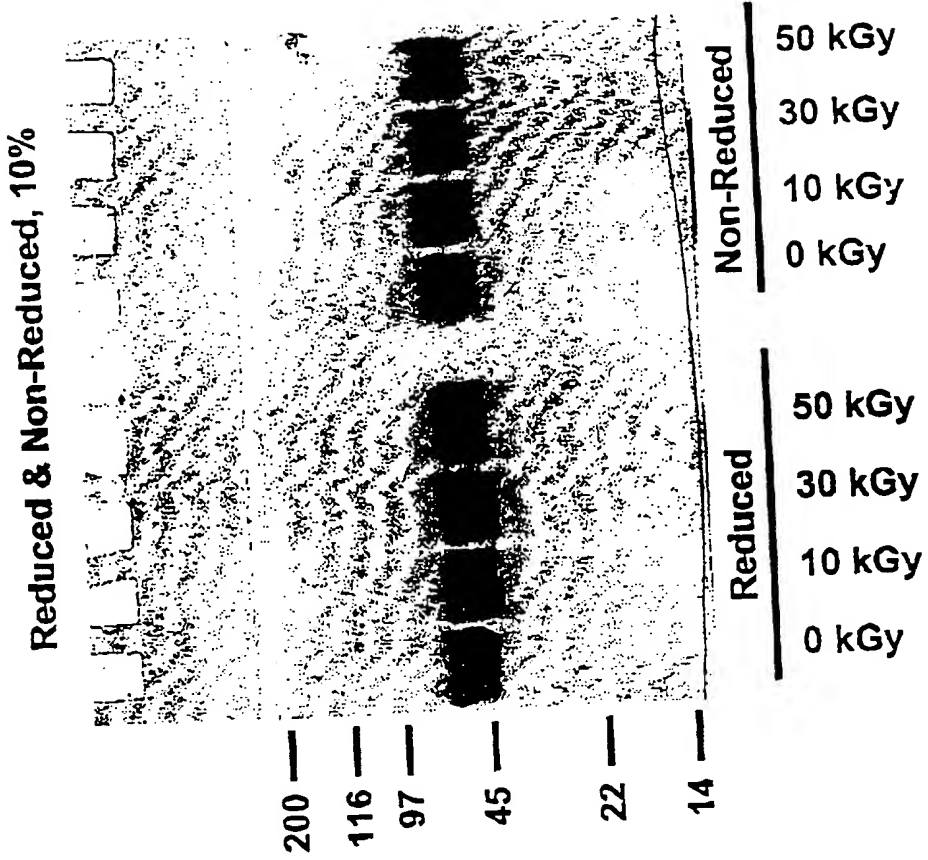
Reduced and Non-Reduced, 10%



49A



# Gamma Irradiation of a Lyophilized Glycosidase In the Presence of 200mM Ascorbate

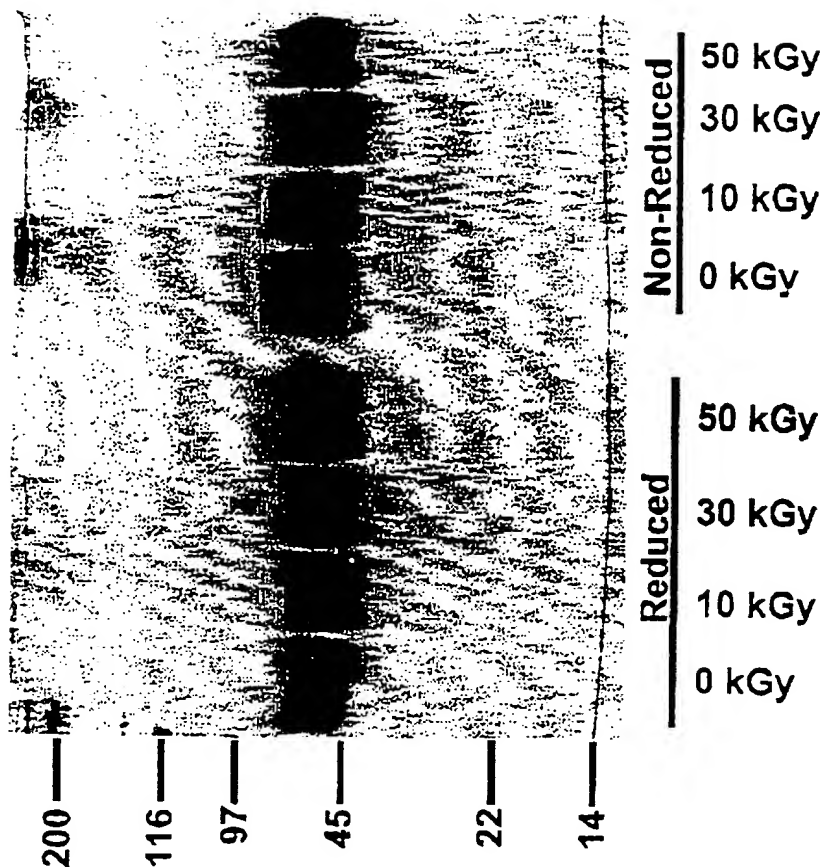


49B



# Gamma Irradiation of a Lyophilized Glycosidase In the Presence of 200mM Ascorbate and 200mM Gly-Gly

Reduced & Non-Reduced, 10%



49C